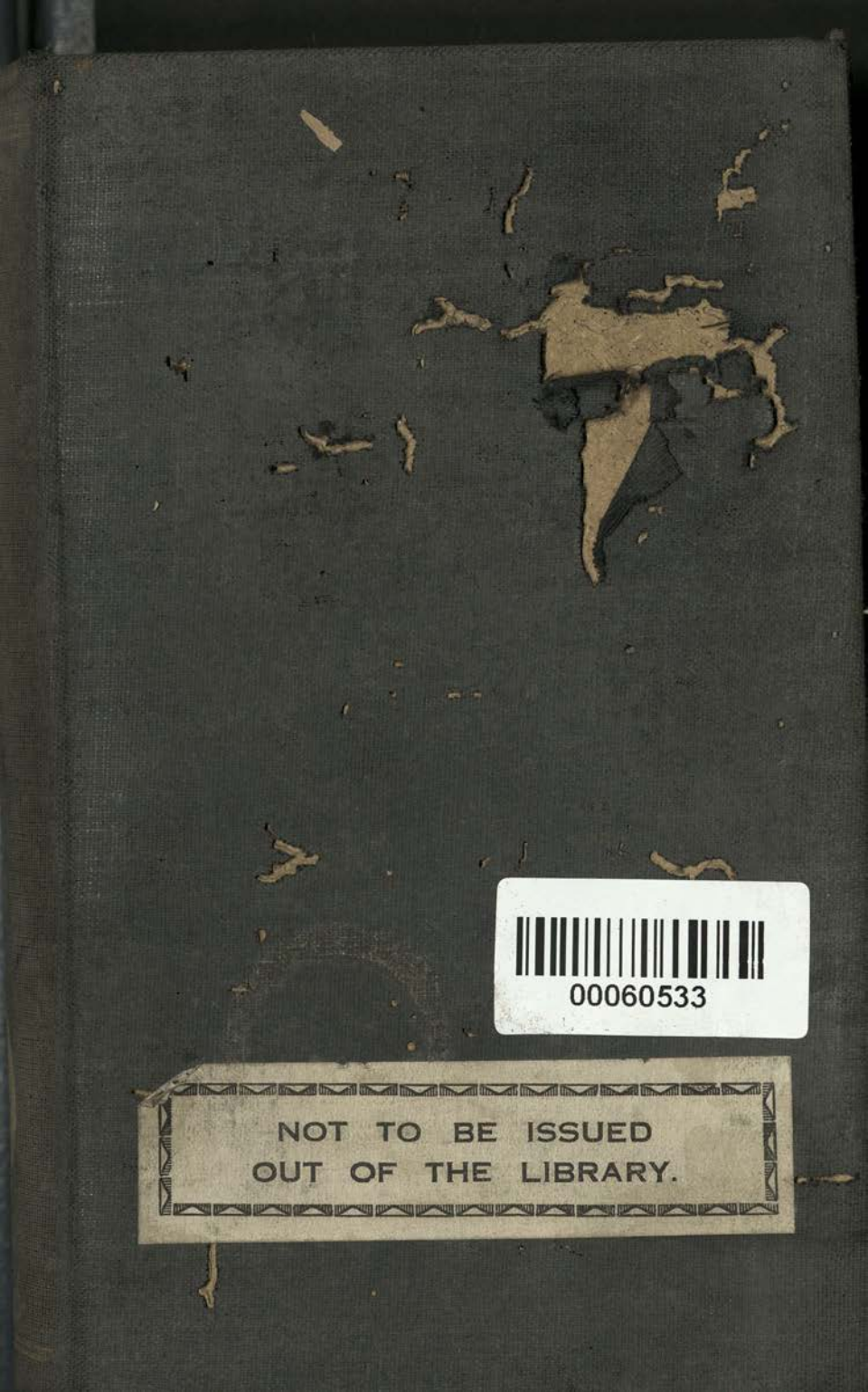
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BURMAH,

ITS

PEOPLE AND NATURAL PRODUCTIONS,

OR

NOTES

ON THE

NATIONS, FAUNA, FLORA, AND MINERALS

OF

TENASSERIM, PEGU AND BURMAH,

WITH

SYSTEMATIC CATALOGUES

OF THE KNOWN

MAMMALS, BIRDS, FISH, REPTILES, INSECTS, MOLLUSKS, CRUSTACEANS, ANNALIDS, RADIATES, PLANTS AND MINERALS,

WITH

VERNACULAR NAMES:

BY

REV. F. MASON, D. D., M. R. A. S.

CORRESPONDING MEMBER OF THE AMERICAN ORIENTAL SOCIETY, OF THE BOSTON SOCIETY OF NATURAL HISTORY, AND OF THE LYCEUM OF NATURAL HISTORY, NEW-YORK.

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Celebrant te Domine omnia tua opera; tui te pii collaudant.

RANGOON:
THOS. STOWE RANNEY,
1860.

LONDON:
TRUBNER & CO. 12 PATERNOSTER ROW.

NEW-YORK:
PHINNEY, BLAKEMAN & MASON, No. 61 WALKER STREET.

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To

LIEUT. COL. ARTHUR P. PHAYRE,

COMMISSIONER OF PEGU,

THIS BOOK ON PEGU AND BURMAH,

WHICH IS MUCH INDEBTED TO HIS RESEARCHES,

IS RESPECTFULLY INSCRIBED

BY THE AUTHOR.

The golden age, when Pegu was *suvanna-bumme*, "The land of gold," and the Irrawaddy *suvanna nadee*, "The river of gold," has passed away, and the country degenerated into the land of paddy, and the stream into the river of teak. Yet its last days are its best days. If the gold has vanished,—so has oppression;—if the gems have fled,—so have the task-masters; if the palace of the "Brama of Toungoo" is in ruins, who had "twenty-six crowned heads at his command,"—the slave is free.

Though a poor man cannot find sudden wealth, as he may perchance in Australia or California, he can ever find work; and by two days labour he can always earn enough to maintain himself the whole week; so by one year's toil he may gain sufficient to support himself three.

There is perhaps no country in the world where there are so few beggars, so little suffering, and so much actual independence in the lower strata of society, as in Pegu. And

perhaps in no part of India is the fire of truth up-heaving those strata to the light, and metamorphising them, mentally, morally and socially, more surely, or more rapidly than in Pegu.

Tutus bos etenim tuta perambulat:
Nutrit rura Ceres, almaque Faustitas:
Pacatum volitant per mare navitae:
Culpari metuit Fides:

Nullis polluitor casta domus stupris:
Mos et lex maculosum edomuit nefas:
Laudantur simili prole puerperae:
Culpam Poena premit comes.

Longas o utinam, dux bone, ferias
Praestes Burmahiæ! dicimus integro
Sicci mane die, dicimus uvidi,
Quum Sol oceano subest.

PREFACE

TO THE FIRST EDITION.

This work owes its origin to the wants experienced by a translator of the Bible.

Ever since the day that man was sent to dress the garden of Eden, and to give "names to all cattle, and to the fowl of the air, and to every beast of the field," he has in every age, and in every clime, been a lover of nature. It has been remarked of the Hebrews especially, that "they make such frequent recurrence for metaphorical expressions to natural objects, and particularly to plants and trees, that their poetry may almost be termed the botanical poetry." The Hebrew and Greek Testaments contain between seven and eight hundred names of natural productions, found in the countries where the books were written; and Michaelis says "there are upwards of two hundred and fifty botanical terms." These names and terms enter into many thousands of verses, THE PROPER RENDERING OF WHICH DEPENDS UPON A CORRECT KNOWLEDGE OF THE THINGS DESIGNATED. And how much more lucid and interesting will appear the Book of God, if these terms be rightly translated!

Throughout the inspired writings of the Ancient Scriptures, and in all the teachings of the Apostles, we find constant allusion to the works of nature. And our Saviour in his parables and similitudes continually draws from the natural scenes of earth which his almighty hand had fashioned, that "the invisible things of Him from the creation of the world might be clearly seen, being understood by the things that are made." But had his hearers been unacquainted with the particular names and properties of the plants or animals to which he referred, they could never have felt as they did, the overwhelming power of his arguments and illustrations. And yet, by some translators, a very considerable proportion of the botanical, and zoological names that occur in the Bible are unnecessarily transferred! "Not being a zoologist, botanist, or mineralogist," wrote a distinguished translator, "I have not unfrequently, in disposing of technical terms whose meaning I could not satisfactorily settle, gone the whole animal, plant, or mineral, as the case might be, and transferred it."

In this way many words are transferred for which there are good vernacular names, and a native has in his Bible a barbarous word that conveys no idea, while it may be the original word designates a flower, that is wafting its fragrance within the lattice where he sits reading. This is no fancy sketch. The camphire of the English Bible, the exquisitely fragrant *Lawsonia inermis*, or henna, is rendered in one Indian version by camphor, and in another the name is transferred, while the shrub itself is growing by the doors of myriads of native houses in both Indias, and for which there are established vernacular names in every Indian language to which I can refer.

Such transfers always cast a deep shadow over the signification of the passage in which they occur, and sometimes wrap it in impenetrable darkness. For instance; Christ says to the Scribes and Pharisees; "Ye pay tithe of mint and anise and cummin, and have omitted the weightier matters of the law, judgment, mercy and faith." Here the antithesis can only be seen by a knowledge of the trifling character of mint, anise, and cummin; yet in two Indian versions every one of these names is transferred, which renders the clause, without a paraphrase, as unintelligible as the English Bible would be with as many Chocktaw words in their place. Still, nothing could be more unnecessary, for the readers of the versions are nearly as familiar with mint, anise, and cummin, as the people of Europe, and have as well established names for them in their language.

In two versions, made several thousand miles apart, the translators transferred the original word for wood-aloes, although the people for whom they wrote were well acquainted with it, and there were good terms in the languages in which they were translating by which to render the word, but of both facts the translators were manifestly ignorant.

These examples, which might be easily multiplied, illustrate the advantages which a translator with some knowledge of the natural sciences, possesses in dealing with the Word of God. But the reader asks, "why need he enter scientifically into these studies? Why does he not take the lexicons, and other helps prepared for him?"

Many are the admirers of nature, but let it not be supposed that all are her observing students. The pages of learned men in Europe and America, who have incidentally written upon natural history, prove that they are not.

Rosenmüller is the author of the best work extant on the botany of the Bible, yet his unskillful treatment of the subject suffciently attests his slight knowledge of the science. His descriptions are usually ill written, and bring before the eye of the reader no definite picture. They are often moreover very defective, giving popular names, as beans and lentils, which are indefinite and applicable to different species and even to different genera, without the systematic names, which alone are definite and enable a translator to render accurately. Occasionally his statements are erroneous. Of agallochum or wood-aloes he says: "There is a species of this tree that grows in the Moluccas, called *garo*, Linnæus has described it as *Exæcaria agallocha.*" It would perhaps be difficult to find two trees in the whole vegetable kingdom with more opposite properties, than these two species. The Burmese are well acquainted with both. Mr. O'Riley observed correctly that, "Akyau is a very fragrant and a very scarce wood of high value with the natives." This is agallochum or wood-aloes.* The other is a tree that the Burmese call *ta-yau*,† abundant near the sea, the juice of which is said to produce the most intense pain, and often blindness if it enters the eye. From its power to produce blindness the Karens call it the "blind tree;" and the natives are all of them so much afraid of it, that I have sometimes found it difficult to induce my boatmen to pull up beneath its shade.

In Carpenter's Natural History of the Bible, a popular English work, reprinted by Abbot in America, a description of the gecko is given worthy of the days of King Arthur. "It is thus described," says the author, "by Cepede: Of all the oviparous quadrupeds whose history we are publishing, this is the first that contains a deadly poison. This deadly lizard, which deserves all our attention by his dangerous properties, has some resemblance to the chameleon. The name, geckoo, imitates the cry of this animal, which is heard especially before rain. It is found in Egypt, India, Amboyna, &c. It inhabits by choice the crannies of half rotten trees, as well as humid places. It is sometimes met with in houses, where it occasions great alarm, and where every exertion is used to destroy it speedily. Bontius states that its bite is so venomous, that if the part bitten be not cut away or burned, death ensues in a few hours."

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* အကျော်။ † တရော်၊ကရော်။

It is well known in India that the gecko is as harmless as the cricket. I have had them drop from the ceiling upon my naked hand, and hang suspended by the feet from my fingers without the slightest pain or inflammation ensuing.

Stuart on Rev. 21: 18, says: "The bottom row of foundation stones was *jasper*—which is of a green transparent colour, streaked with red veins." Such a definition of jasper I have never been able to find in any work on mineralogy; and Webster, following Dana, defines it: "An opake impure variety of quartz, of red, yellow, and also of some dull colours." The distinctive character of jasper from other minerals that resemble it, is "its opacity." The Greek word as used by the Apostle, undoubtedly designated the stone now called heliotrope or blood-stone—a mineral of a remarkably deep, rich, green; and translucent, but spotted with opake red spots, supposed to be red jasper. There is in it something peculiarly agreeable to the eye above all other precious stones I ever saw, or that probably exist; and were heliotrope inserted in the version, the imagination of every reader would picture to himself a foundation for the Heavenly Jerusalem of the pleasantest stone for the eye to gaze upon, that earth can produce.

Murray, in his Encyclopedia of Geography, the first work of its class, says: "To the fig tribe belongs the famous banyan of India, commonly called peepul tree, and constantly planted about Hindoo temples (*Ficus religiosa.*)" But the famous banyan is not commonly called peepul, but bir; and the peepul is not the banyan, and the tree which is usually planted about Hindu temples is not the banyan, but the peepul, and the banyan is not *Ficus religiosa*, but *Ficus indicus*. Again, he remarks: "Far superiour to this [the cocoa] in the magnitude of its leaves, of which a single one will shelter twelve men, is the palmyra palm (*Borassus flabelliformis*,) which sometimes attains to one hundred feet, while its trunk yields abundantly toddy or palm wine."

It is true the palmyra produces toddy, not however from the trunk, but from the spathes that bear the flowers and fruit, but the leaf of the palmyra is not much larger than a large cabbage leaf, and the reference to the leaf should have been to the great fan palm of Ceylon, *Corypha umbraculifera*, a palm not of the same genus with the palmyra.

In a little work published by the American Tract Society, it is written: "In some hot countries where water is scarce, travellers obtain a supply from the palm tree;" and the statement is illustrated by a very good representation of the common plantain tree, with a fine stream of water gushing from an incision that has been made in the trunk!

The writer had probably some confused ideas of the palm producing toddy, or the traveller's tree, handsome urania, which produces water when a leaf is broken off; or of the water-vine phytocrene, an immense creeper, that grows on our thirsty mountain sides, which when dissevered discharges a large quantity of water, that is a most grateful beverage in a hot day, when far above the streams of the vallies.

In one of the elaborate volumes of the United States Exploring Expedition it is said: "In its wild state the peacock is peculiar to Hindustan;" while they are roving wild all over these Provinces, Aracan and the Burman Empire. Webster defines dammer as "a resinous substance, obtained from a species of agathis or dammara, a tree allied to the pines," while here it is obtained from the wood-oil tree family;* and a considerable proportion of what Europeans often call dammer, is a hard kind of bees' wax, produced by a bee that builds in hollow trees.†

With teachers like these, Europeans and Americans come to India, and find themselves in the midst of a fauna and flora with which they are utterly unacquainted. In sections where there are lexicons that define correctly the vernacular names, the difficulty is scarcely felt. In Wilson's Sanscrit Dictionary, for instance, the systematic name of nearly every plant and animal known to the language, can be found at once; but if, as in Farther India, the lexicographers are as much in the dark as the inquirer who consults them, he has no alternative but to remain in darkness, or sit down to the patient study of the objects themselves. And to this toil the translator of the Scriptures must address himself, for it is not optional with him, but is a part of his professional duty to render, if possible, every word of the original by its corresponding word in the vernacular, and he is so far wanting in the trust committed to him by the churches or societies whose ambassador he is, if he shrinks from any study requisite to qualify him for the accurate performance of his work.

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* အင်တွဲ။ † ခွဲရက်။

In ordinary circumstances, the professional duties of most men preclude them from bestowing the time and attention to the natural sciences, necessary to enable them to determine accurately the character of the objects of nature with which they are unacquainted. It is not remarkable then that our Chin-Indian literature abounds in errors. Throughout India, wherever there is European society, there is found a numerous class of English names incorrectly applied to Indian productions, which almost unavoidably lead the translator or author astray, when unable to make a scientific examination for himself. On this Coast, for instance, it has passed from conversation to books, published within the last ten years, that turmeric is saffron; the flower of the thorn apple, the trumpet flower; the tamarind tree, the tamarisk and its timber, iron wood; the ebony tree is the cabbage tree of one author, and the fig tree of another, and ebony not being supposed to exist, though abundant throughout the Provinces, is defined "a kind of a tree." The fennel flower is "a kind of rice;" nettles, "a kind of thorn;" sweet flag, sugar cane; and the date tree is the palmyra palm. Mica is talc; serpentine, jasper; the carnelian, a garnet or ruby: gamboge, realgar the red sulphuret of arsenic; natron, the carbonate of soda, is saltpetre the nitrate of potash; and antimony is bismuth, according to one authority, and James' powder, according to another. The porcupine is a hedge-hog; the hedge-hog, a pangolin; the shrew-mouse a musk rat; the sand-badger or arctonix, a hyena; barking deer, porcine deer; the monitor, a guana; and the blood sucker, a chameleon. The adjutant is a gull; the eagle, a swan; the hornbill, a crane; the sun bird, a sky lark; and the grey heron, a water-hen.

In a work translated from the Burmese into English, and printed at the expense of Government, the Burmese name of the common wild ox, *Bos sondaicus*, is translated bison; the sambur, or rusa deer, is elk; barking deer, spotted deer; the eagle is an adjutant; cranes are called *cyrusses;* sun-birds, *hnan-sok;* a coluber is translated a *leng* snake; a crocodile, an alligator; the toad, "a rough frog;" tin in one place is lead; and pewter, or a mixed metal resembling it, is translated "white copper;" the Bengal quince is rendered *oksheet;* one species of millet, *sap;* another species of millet, barley; barley is translated *mayau*, in one place, and *mace* in another; arum is "*ping* (root)," a species of yam, *thadæ;* and the corypha palm, the palmyra palm.

This last errour may be supposed to be of little consequence, and yet through it, the whole paragraph in which it occurs becomes false; and illustrates a precisely opposite argument from that for which it is brought. The writer says: "As regards the inheritance like a palmyra tree; it is the nature of this tree not to grow from cuttings or shoots; having lived its time, it flowers and bears fruit; when the fruit has fallen off, the parent tree dies; after its death, each fruit becomes a tree and continues the family. Whilst the tree was alive, no other tree could be produced; so only on the death of their parents do children inherit." The palmyra tree produces its fruit annually, as regularly as the apple tree, and young trees may be raised from it as easily as from apple seeds, while the parent tree is still living; so if the comparison prove any thing, it proves that children may inherit before the death of the parent, just the converse of that for which the comparison was made. Let however the original word be correctly translated, and no simile can be more striking, and appropriate. A corypha palm after it has borne fruit, lifts its blackened leafless head above all the other trees of the forest, like the dead father of the woods struck by lightning.

Where two or more systematic names are attached to an article in this work, they are, unless the contrary be indicated, the different names by which the same object is designated by different writers. In zoology these synonymes have been selected principally from articles published in the Journal of the Asiatic Society, by Dr. Cantor and Mr. Blyth. In botany the first name is the one under which the article will be found in Voigt's Catalogue, if in that work, and in other modern writers; while the second is the Linnæan name, or the one by which it was described by Roxburgh and by other authors of the old school.

The utility of these synonymes will be best understood by an example. Gesenius, Rosenmüller, Harris, and other Biblical writers, tell their readers that *copher* designates *Lawsonia inermis;* and Dr. Wight in his Illustrations of Indian Botany, gives a handsome coloured figure of *Lawsonia alba.* To a person not read in botany these will be regarded as different species, but on turning to my article, the reader will learn at a glance, that they are different names given by different writers to the same plant. Thus it will be seen that our common barking deer lies scattered over the pages of natural history under twelve different

names, and without the synonymes it might be taken for twelve different species. In like manner, when objects have several native names, as they often have, I give all that I have heard.

Still the investigator will not always obtain at once the object he seeks from the native name; and this is a difficulty which no author can obviate, as it exists in the language. Different objects sometimes have the same name, as for instance, the goat-sucker and the snipe. The Burmese call both *mye-wote*,* from their habit of dwelling on the earth. Sometimes a slight distinction is supposed to exist between different things, which is not always observed. The Amherstia and the Jonesia are both *athauka* trees, but the Amherstia is regarded as the female, and the Jonesia as the male tree, which is therefore denominated *athauka-pho*.† So the male of the fagræa, is the gordonia, or *anan-pho*. The same object is often known by different names. Our knowledge of the existence of platina in Burmah was first furnished by Mr. Lane, who said the Burmese called it *sheen-than*, but in his Dictionary he defines it *shwe-phyu*,‡ or white gold. Some persons make distinctions which others neglect. The water-lily and the nelumbium are both call *kya*;|| or the *kya* is restricted to the water-lilies, and the nelumbium called *pa-dung-ma*.§ To many obscure species in every department of the natural kingdom, the natives have no definite names, on which they can agree among themselves.

The local names used in Tavoy and Aracan are given where known; the latter on the authority of Col. Phayre; from whom also were first derived some of the Burmese names for birds, and the smaller mammalia. It is only within the last two years that the proper Burman name for eagle has found its way into books, though it was communicated first by Col. Phayre, some eight or ten year ago.

The present work does not explain mere technicalities for the naturalist, but brings to light in the department in which it enters, a host of common English words that have hitherto been left in this country like useless lumber in the shade. To illustrate this position, take a single example from the ichthyology, in which for the first time the correct native names are furnished of the following fish known to

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* မြေဝတ်။ † အသော်ကဖိုလ်။ ‡ ရွှေဖြူ။ || ကျာ။ § ပဒုမ္မာ။

English readers: River perch, cockup, band fish, umber or sea perch, Indian whiting, mullet,* mango fish, climbing perch, snake-head, ophidian, long-snout, doree, pomphret, ribband-fish, goby, carp, barbel, gudgeon, bream, white fish, loach, flat-bellied herring, thryssa-anchovy, bristle-finned sprat, fresh-water herring, flying-fish, gar fish, half-billed gar fish, plagusia-sole, brachirus-turbot, adipose cat fish, short-headed cat fish, eight barbuled cat fish, long-finned cat fish, two barbuled cat fish, fork-tailed cat fish, barbuleless cat fish, plotosus cat fish, clarias cat fish, long-headed cat fish, hammer-headed shark, saw fish, scate or ray, sea-porcupine, or square fish, fishing frog, common eel, serpent-hearted eel, and conger eel.

Still no pretentions are made in this work to completeness. It is not a book composed in the luxury of literary leisure, but a collection of notes which I have been making during the twenty years of my residence in this country, in the corners of my time that would otherwise have been wasted. Often to forget my weariness when travelling, when it has been necessary to bivouac in the jungles; while the Karens have been seeking fuel for their night fires, or angling for their suppers in the streams, I have occupied myself with analyzing the flowers that were blooming around my couch, or examining the fish that were caught; or an occasional reptile, insect, or bird that attracted my attention. With such occupations I have brightened many a solitary hour; and often has the most unpromising situation, proved most fruitful in interest; for "the barren heath, with its mosses, lichens, and insects, its stunted shrubs and pale flowers, becomes a paradise under the eye of observation; and to the genuine thinker, the sandy beach and the arid wild are full of wonders."

Without books and without means to convey away specimens, my plan was to note down just such characteristics, in the objects that I observed, as secured most of my attention; but when I came to compare my notes with descriptions in books, they would often be found to contain insufficient data to determine the species, and sometimes even the genus, but perhaps enough for the tribe or family. In botany this was sometimes necessarily the case, because I frequently met with a plant in flower without the fruit, or

* There are three species of mullet with three distinct native names, one of which has been correctly defined before.

in fruit without the flower; where both flower and fruit were necessary to determine the genus. Often again, never contemplating publication, when I had no use for the article in translation, and no object in being precise, I was content, as with fish for instance, to satisfy myself that it was a catfish, a member of the carp family, or an eel, as the case might be, without making observations which would enable me to distinguish the species.

Future investigation will supply many deficiences, and correct many errours that are inseparable from a first attempt like the present, which involves the observation of so many objects, in so many different departments of natural science, and their names in so many languages. Still, it is confidently believed, that no one can longer say of Farther India, as does Murray in his Encyclopedia of Geography: "There are no materials on which we can attempt a botanical, or geological delineation of this territory. The zoology also of these immense and luxuriant regions is scarcely known."

It will therefore be seen that a work like this was demanded, and I trust it will commend itself not only to the Biblical student, but to authors in the vernacular languages, especially to such as shall hereafter prepare native works on natural history. It will also be serviceable to those who translate from the Burmese or Karen into English, and to all natives who read English, and particularly to every one who desires to write on these Provinces either in India, England, or America.

This is my reply to those "machines for eating and drinking, digging and working, hoarding and spending," who ask: "WHAT'S THE USE OF IT? They cannot well see the use of studying the stars, observing the stratification of rocks, or being curious about shells, minerals, and plants, birds, beasts and insects."

Tavoy, 1852.

PREFACE

TO THE SECOND EDITION.

Since the first edition of this work was printed, the annexation of Pegu has widened the field of observation, and the influx of European residents has multiplied observers. The results have been commensurate with the favourable circumstances, and our knowledge of the country, its nations, fauna, and flora, has greatly increased.

We are now well acquainted with several wild tribes, that seven years ago were scarcely known by name. When Capt. Yule wrote in 1857, he had heard of no Karens "farther north in Burmah than the district of Tsalen." We now trace them above Ava, and Bamo is of common occurrence in Bghai poetry, as the name of a large Burmese city, to which the people formerly went to make purchases, as they now do to Toungoo. His stock of Red Karen vocables, which consisted of a single word, has been multiplied a thousand fold, and a book in the language is nearly ready for the press. Still the want of some "really good account of these tribes," remains in all its force, and is felt by none more deeply than the writer. All our knowledge of them is fragmentary, and unsatisfactory. The knowledge desired has not yet come up from the abyss of darkness. It is easier to ask a native a thousand archæological questions, than for him to answer one correctly. Still the fragments are constantly increasing, and time is a great revealer of secrets.

Materials for this edition have been gleaned from every available source, both from printed papers and private correspondence; and our advance upon the first, which was

very favorably received, may be seen in every branch. Col. Phayre has added the Jackal, Major Berdmore the mole, Major Sparks the Rorqual, and Rev. Mr. Benjamin the Dugong, or Sea-cow, to our Mammalia. From Mr. Blyth's reports, the birds have been increased from two hundred species to nearly five hundred. Major Berdmore, who was distinguished in every branch of zoology, was especially successful in his researches among the fish and reptiles, and has contributed many new species. Capt. Smyth has furnished three hundred beetles, and Mr. Theodore a large number of shells. In Botany the book is indebted to nearly all it contains on the Ferns and Mosses, to Rev. C. P. Parish, who has also largely increased the number of flowering plants; while in Glossology, the three Karen vocabularies have been increased to nine, pertaining to as many distinct tribes. Many good ideas have been appropriated from Capt. Yule's book, which is a fountain of facts on the history, geography, and ethnology of Burmah. Extracts are given from Col. Phayre's reports indicative of a new government policy. From the patronage afforded the Karens, Government seems disposed, now, to foster the upward tendencies of the wild tribes in India, more than heretofore. In a political point of view, the christianization, and civilization of these tribes is a matter of much more importance than is usually given it. Recent events have proven that one hundred years of British supremacy in India, have not attached the Brahmin and Mussulman to their English rulers, any nearer than they were at the close of the battle of Plassy. It is equally apparent that where the Government acts in harmony with the Missionary, a christian and civilized community is formed on the mountains, which is bound to the government by a common religion, and a common civilization. Though it may be comparatively small, it may be made, by a wise government, much more powerful than would be supposed by merely counting the heads. For instance, here is a Karen who keeps in his nest a Sharp's

rifle, and knowing that he can use it twenty five times without priming again, and can load it at the breech with great rapidity, without any extraordinary amount of courage, he has confidence in his arms, and feels himself a match for a dozen ordinarily equipped natives. Thus a small population, able to avail itself of the science of the nineteenth century, is of far more political importance than a tenfold larger one at the same point of civilization they were in when the Greeks ruled Asia. A force might be organised in the mountains that the Budhist inhabitants of the plains, in the event of war, would dread; but to be efficient it must not be organised after the manner of ordinary corps. To bring the Karens to fight under their own chiefs, must be the object, and this with judicious management can be done; but to induce them all to obey cordially a single head, is a work of no easy accomplishment, owing to the clanish spirit which exists so strongly among them. The Maunepghas are jealous of the Pakus, the Pakus would not obey a Maunepgha colonel, and neither would follow a Bghai leader. The same difficulties exist with the Mophaś, Manumanaus, and Gay-khos; and until something common to all is found they can never be brought to act together. Christianity, and christianity alone, furnishes this point of union. Widely as these tribes have been separated in habits and feelings for untold ages, already the inquiry is when they meet a stranger, not to what clan he belongs, but whether he is a *pgha-bà-yẏwa-pho*, "A worshipper of Jehovah." Any attempt to bring christians and heathen together, will prove a failure. The banner of the corps must be the Cross, and their motto, the same that led Constantine to victory:

In hoc signo vinces.

Toungoo, 1860.

FACE OF THE COUNTRY.

From the mountains at the sources of the Yang-che-kiang, the largest river of the old world, two sister streams are seen, on the maps, descending from the eastern declivities of the Hymalaya, gradually receding from each other as they proceed—the Irrawaddy and the Meinam. Between the western mountains, which bound the valley of the former, and the eastern water shed of the latter, are Pegu and the Tenasserim provinces, extending from about latitude 10° N. to nearly the parallel of 20° N. The eastern and western boundaries are unbroken ranges of mountains rising in some localities to the regions of fruit and raspberries, of pines and rhododendrons.

Pegu, larger than lower Egypt, embraces the delta of the Irrawaddy, which falls into the sea by more mouths than the Nile, with banks up to Henzada like those of the Rhine below Dusseldorf. Three hundred years before Alexandria was founded, about the time that Thales, the most ancient philospher of Europe, was teaching in Greece that water is the origin of all things, the soul of the world ; and Zoroaster, in Media or Persia, was systematizing the fire worship of the Magi, and Confucious in China, was calling on the teeming multitudes around him to offer to guardian spirits and the manes of their ancestors ; and Nebuchadnezzar was setting up his golden image in the plains of Dura ; and Daniel was labouring in Babylon to establish the worship of the true God in Judea; a reverend sage, with his staff and scrip, who had left a throne for philosophy, was travelling from Gaya to Benares, and from Benares to Kanouj, exhorting the people against theft, falsehood, adultery, killing, and intemperance. No temperance lecturer advocates teetotalism now more strongly than did this sage Gaudama twenty three centuries ago. Nor did he confine his instructions to external vices. Pride, anger, lust, envy, and covetousness were condemned by him in as strong terms as are ever heard from the christian pulpit. Love, mercy, patience, self denial, alms giving, truth, and the cultivation of wisdom he required of all. Good actions, good words, and good thoughts

were the frequent subjects of his sermons; and he was unceasing in his cautions to keep the mind free from the turmoils of passion, and the cares of life. Immediately after the death of this venerable paripatetic, his disciples scattered themselves abroad to propagate the doctrines of their master, and, tradition says, one party entered the principal mouth of the Irrawaddy, where they traced its pebble-less banks to where the first rocks lift themselves abruptly above the flats around. Here, on the summit of this laterite ledge one hundred and sixty feet above the river, they erected the standard of Budhism, which now lifts its spire to the heavens higher than the dome of St. Paul's; thus founding Rangoon in the second half of the sixth century before Christ.

The founder was inspired, but inspired, like Caiaphas, not knowing himself to be a prophet. Rangoon, with a navigable river to Bamo, is the natural outlet to the seas, and silks, cotton and porcelain, metals, minerals and precious stones of southern China; and though the trade is obstructed at present, the obstruction is a mere accident which is destined to be removed, as certain as that the irresistable tendencies of the age are to the breaking down of every obstacle to human progress, to the diffusion of science, religion, civilization, and to the amelioration of the down-trodden masses of mankind. Dalhousie too was inspired when he annexed Pegu; but the collection of revenue is no more the object for which God has put the country into our hands, than the collection of tythes was the object of the Mosaic polity. It is a block of marble given us, out of which we are to hew a statue: An acorn, from which we are to raise an English oak: A dry bulbous root that we are to water into a Victoria Regia: One of Cesar's wood-painted savages, without an idea beyond his sensible horizon, whom we are to transform to a partaker of the divine nature, baptized in the science of La Place, Herschel, Davy, Watt, Morse, Linneus, Cuvier, and Kant. The work to be done is what man has done, can do again, and is destined to do. The business before us in the present pages is to survey the field.*

*This survey has been contracted by the announcement, while preparing the manuscript for the press, of a book on Budhism by Dr. Bigandet, and the appearance of Yule's report. This work is not intended to trench on the labours of either, but to supply a want for which neither provides.

British Burmah embraces all the variety of aspect from the flats of Holland, at the mouths of the Irrawaddy, to the more than Scottish beauty of the mountainous valley of the Salwen, and the Rhenish river banks of the Irrawaddy near Prome.

"It is a beautiful country," wrote one of our Bengal visitors; "here, there are views and patches of scenery, green fields and green lanes that lead back the mind to one's own loved land." No contrast can be more striking than the scenery of the Salwen, and that of the Hoogly, the last often that the eyes rest upon before reaching this coast. The interminable level plains of Bengal, without the semblance of a hill for hundreds of miles, are changed for mountains and valleys, cloud-capped crags, and frowning precipices; and green fields with immense grotesque masses of mural limestone starting up in their midst, like the gigantic spectres of an antediluvian world. The dullest of all landscapes is exchanged for the most sublime and picturesque.

"It is a beautiful land," when seen on the coast, but it is still more beautiful when seen amid its mountain streams; streams that cannot be surpassed in romantic beauty, even in the annals of poetry itself. In some places they are seen leaping in cascades over precipices from fifty to one hundred feet high; in others, spreading out into deep, quiet lakes. In some places, they run purling over pebbles of milke-white quartz, or grass green prase, or yellow jasper, or sky-blue slate, or variegated porphyry; in others, they glide like arrows over rounded masses of granite, or smooth angular pieces of green stone. In some places, nought can be heard but the stunning sounds of "deep calling unto deep," in others, the mind is led to musing by the quiet murmur of the brook, that falls upon the ear, like distant music. The traveller's path often leads up the middle of one of these streams, and every turn, like a turn in the kaleidescope, reveals something new and pleasing to the eye. Here, a daisy-like flower nods over the margin, as if to look at her modest face in the reflecting waters; there, the lotus-leafed wild arum stands knee deep in water, shaking around with the motion of the stream, the dew drops on its peltate bosom, like drops of glittering quicksilver. Here, the bare fantastic roots of a willow, sprinkled with its woolly capsules, come down to the water's edge, or it may be an eugenia tree, with its fragrant white corymbs, or a water dillenia, with its brick-red scaly trunk, and green.

apple-like fruit, occupies its place ; there, the long drooping red tassels of the barringtonia hang far over the bank, dropping its blossoms on the water, food for numerous members of the Carp family congregated below. On the islets are seen a dwarf species of wild fig, and the bare rocks on which vegetation has not yet squatted are often the watch-tower of the king-fisher, with her wings of blue, and breast of red. Now we come on a little patch of impenetrable reeds, a Mississippian cane-brake in miniature ; and anon the pink corymbs of a shrubby species of Ixora looks down upon us from a steep bank. In place of the reed, we have sometimes a thicket of the curious half-anthered Phrynium, and instead of the Ixora, we have often large clusters of a fragrant clerodendron, of which our forests produce three or four different species. Often the waters breathe the odor of the lily from the water Crinums that float their large blossoms on the surface, while on the margin, the glowing red flowers of the amonum peep up from the base of their green stems ; or a creeping species of acacia entwine its globular scentless flowers with the fragrant one sided spikes of the Hopea, high in the lofty tree tops. Here an ebony tree droops beneath the weight of its persimmon-like fruit, and there a gamboge tree lifts its graceful head, with its delicate little 'mangosteens in miniature ; or the large creeping oleastor swings from the forest tree to which it clings its rich bunches of sour scarlet plums.

—"Fern, flowers, and grasses creep,
Fantastically tangled : the green paths
Are clothed with early blossoms, through the grass
The quick eyed lizard rustles, and the bills
Of summer birds sing welcome as ye pass ;
Flowers fresh in hue, and many in their class,
Implore the pausing steps, and with their dyes,
Dance in the soft breeze in a fairy mass ;
At every door the odorous jasmines rise,
Kissed by the breath of heaven, seem fragrant from the skies."—*Byron.*

MERGUI.

Mergui covers the face of a hill on an island at the mouth of the Tenasserim, separated by a narrow strait from one of the islands of the Mergui Archipelago ; a cluster of islands and islets with bays and coves, headlands and high lands, capes and promontories, high bluffs and low shores, rocks and sands, fountain stream and cascade, mountain plain and precipice unsurpassed for their wild fantastic and picturesque beauty. Though seldom visited by Europeans now, the hardy navigators of the sixteenth century often threaded their mazes. Cesar Fredirich, a merchant of Ve-

nice, speaks of the Tenasserim, as "a great river which cometh out of the kingdom of Siam, and where this river runneth into the sea there is a village called Mirgin, in whose harbour there lay every year some ships, with veizina, [sappan wood] nyppa, and benjamin."

TENASSERIM.

Forty miles through a labyrinth of thickly wooded islets, that seem fresh from the womb of uncultivated nature, the voyageur comes suddenly at the head of the delta to a crescent of precipitous mountains skirted by the river at its base, and on the crest of a low ridge of hills on the opposite shore, which lies across the bend like an arrow on the bow, are seen the dilapidated battlements of the old city of Tenasserim, looking like age in the habiliments of a wood nymph. Though now an inconsiderable village, Tenasserim will be an important place again when we annex Siam. Three hundred years ago, when the small trade of that age was open across the peninsula with Siam, it was able to pay, to the king of Pegu, an annual tax of thirty thousand ticals of silver, thirty elephants, and all the customs of the port. We ought to have a treaty at the present moment, to compel the Siamese government to permit a free overland trade. Capt. James Lancaster, the first English captain who made the voyage to India, A. D. 1592,* speaks of waiting at Point de Galle for "the ships from Tenasserim, a great bay to the south of Martaban in the kingdom of Siam." In a voyage made A. D. 1609, it is said: "The Guzerat vessels came to Siam in June and July, touching by the way at the Maldive Islands, and then at Tenasserim, whence they go over to Siam in twenty days. At Tenasserim there is always five and a half fathoms water."

PALOUK.

From the mountains of Palouk, thirty miles north of Mergui, was written:

We were on the summit of the highest range of mountains in the provinces. The tall timber trees at the first ascent had dwindled into a thick growth of stunted bamboos, unmixed with a single shrub. The path which was narrow and steep, had reached a level spot, that had been in the rains the wallowing place of a rhinoceros; for it has the habit of wallowing in the mire no less than the hog and the buffalo.

* See Maulmain Chronicle when conducted by Mr. Hough.

Here we seated ourselves to rest, and Quala cut down some of the bamboos before us, which interrupted our view on the west. The spotless blue heavens were over our heads, while the clouds, like snow drifts, were seen moving lazily far beneath our feet, insulating many a hill with their fleecy waves, or hanging to the summit of some hoary precipice, like a gigan tic canopy. Pyeekhya, Patsauóo, and Palouk rivers were discovered here and there, peeping from beneath their green eyelashes, as they wandered through glens and gorges, dale and valley and dingle, that never knew the searing effects of frost, but have retained the countenance of youth for untold centuries, like the antediluvian patriarchs. Tavoy point loomed up high in the northwest, crowned with its famous pagoda, built by the king of Pugan in 1204, the same year the crusaders took Constantinople, about the time that Genghis Khan founded the Mogul empire, which covered the globe from the Yellow Sea to the Baltic; when the English nation was extorting Magna Charta from king John, while they were submitting to pay tribute to the Pope. In the direction of Mergui on the southwest, the mountain limestone rocks towered in grotesque peaks among the ocean's waves, indented with subterranean gulfs, where the fearless Malay searches in his frail bark for the edible bird's nest on the crags within. Karen hamlets lay hidden at intervals throughout the wide extended forest below.

TAVOY.

Tavoy stands in an alluvial bottom, and is hidden in the distance by the tall palms, and glossy-green jacks, and yellow-flowered cassias, and twenty other flowering trees unknown to song, which overshadow its humble dwellings; but Siam Hill is a conspicuous knoll, a hundred feet high, six miles long by half a mile wide, in the paddy fields half a mile east of Tavoy.

Here, after emerging from the shrubbery that obstructs the view, there suddenly opens out before the spectator a prospect of indescribable beauty, "like a sleeping child too blessed to awake." At his feet lie spread out the level paddy fields, divided into numerous one-acre lots by little mounds raised around them to retain the water, so as to suggest a gigantic chess board. On the south a silver stream, fringed with the dark foliage of wild fig trees, and the thick struggling bushes of a species of hibiscus, covered with large yellow and red flowers, is seen pursuing its tortuous course be-

neath the shadows of Mount Burney, which rises twelve hundred feet above its southern bank. On the east, "hills peep o'er hills," like the seats of a vast amphitheatre, bounded by Ox's Hump, rising in a most picturesque outline four thousand feet above the plains. Yonder, at the distance of fourteen miles, is seen a foaming cascade making a fearful leap from a gorge half way up the highest mountains. Green forests are diversified with white lichen-covered precipices, while here and there a whitened pagoda lifts its conical head above the summit of an isolated hill, or the smoke of a solitary hamlet is seen curling up in the midst of Wood-oil tree forests or Liquid-amber groves.

"The palm tree waveth high,
And fair the Betel springs;
And, to the Indian maid,
The Bulbul sweetly sings.
But I dinna see the broom
Wi' its tassels on the lea,
Nor hear the Lintie's sang,
O' my ain countrie!"

MAULMAIN.

On looking abroad from the pagoda hills of Maulmain, an unbroken range of primitive mountains, four or five thousand feet high, are seen on the margin of the eastern horizon, sweeping around to the north west like an amphitheatre, where they are lost in the misty distance. From Martaban point another range extends directly north, parallel with the west bank of the Salwen. In the space between these mountains, bounded by the Salwen river on the west, and the Gyaing on the south and east, is an immense alluvial plain, resembling the prairie-lands of Illinois and Missouri. In the midst of this plain, twenty miles north of Maulmain, and six or eight east of the Salwen, the attention of the spectator is arrested by a pile of the most picturesque mountain limestone that ever adorned a landscape. Rising abruptly, in the most fantastic shapes, from the level of tide-water to nodding precipices two thousand feet high at a single leap, they seem to shake their hoary-lichen faces and fern-fringed foreheads at the passing traveller, and threaten him with instant destruction. The whole range is not more than eight miles long, and at twenty miles distance its numerous grotesque peaks give it no very disimilar resemblance to a Gothic cathedral; and the illusion is made the more real by the spire of a small white pagoda being distinguished

with some difficulty in the distance, on the very topmost summit of the highest point of the range, and on the margin of an abrupt precipice.

On a near approach the range loses the continuous appearance which it possesses in the distance, and assumes an undulating aspect, like the waves of an angry ocean. A precipice, near two thousand feet high on the north west extremity, sinks to the south east to within a short distance from the ground, then rises abruptly again to nearly its former height, presenting an unbroken precipitous front for three or four miles. In one place the precipice is not more than five or six hundred feet high, and at this spot a cool crystal stream, several yards wide, and two or three feet deep, gushes out of a purple grot at the base. A writer in the Maulmain Chronicle, describing this stream several years ago, remarked, "It was in the hottest part of the year that I went to the spot, accompanied by several Karens. The heat at the time was truly oppressive until we came within thirty or forty rods of the mountain, when the temperature very sensibly changed, and a delightfully cool current of air was felt setting from the mountain. As we advanced, we saw quite a large stream of water issuing from a cavity in the perpendicular rocks which rose above us to a great height. This stream was clear as crystal and cold as ice water. The temperature of the air here forcibly reminded me of a cool October day at home. On examination, I found the cold air proceeded from a variety of air holes on the side of the mountain. It was a luxury to see so clear a stream of water after having for a long time seen only the muddy waters of the river. It was a luxury to taste water which so exactly resembled the cold wells of home. It was also a luxury to find a little spot in the hottest season and the hottest part of the day, which defied the scorching rays of a vertical sun, and made one fancy that he had been transported to his own climate and was breathing his own pure air."

This writer's emotions would have been chastened had he known that that stream, "clear as crystal and cold as ice water," had been the theatre of more agonizing scenes than the muddiest and hottest stream in the Provinces; scenes that had won for it the name of "TEEYANG"—*the Brook of Weeping.*

With some difficulty a man may enter the cave and follow up the stream a few yards, but the only path is the bed of the brook, and the glittering stalactites hang so low from

the roof that a passage is not easy. A more interesting scene awaits the lover of nature without. Immediately above the mouth of this cave and stream the rocks rise as abruptly as in any other locality, but the limestone has been worn by the waters of ages unequally, and many masses of rock have been detached from its face and fallen to the base, leaving numerous jutting prominences, some of which are loosely held by the arms of the parasitical Ficus, whose roots find a passage into every crevice, and often bind together the broken fragments. With a steady head, and with fingers and toes accustomed to climbing, a person, by pursuing a zigzag course, may reach the summit at this point. The fallen rocks piled up from the base, afford a very practicable flight of steps above the highest tops of the gorgeous red-flowered Coral trees, that throw their shadows over the mouth of the cave, and crowd the banks of the brook. Above, the precipice has a slight declination, and a rough, uneven surface, so that naked feet and hands with care may ascend it to a narrow ledge, and this ledge, though in some places less than the width of a man's foot, serves as a path to a natural parapet, in which one armed man might conceal himself and defend the ascent against an army. By a path with like various alternations, the margin of the summit is reached, where a full view of the region below is spread out before the eye of the spectator. At the base of the western mountains the Salwen is seen plunging down its mighty waters to Martaban and Maulmain, where they are joined by the Gyaing, that bounds the prospect on the south and east; while little islands of forest trees, each concealing beneath its shade a quiet hamlet, dimple the whole plain; and babbling brooks thread their wandering ways like veins of silver, or mark the courses of their hidden waters by the emerald hue of their banks.

Turning from the prospect below, and climbing upward on men's shoulders, a gap in the rocks above is reached; then descending a few yards, the spectator is astonished to find himself on the edge of a large basin, like the crater of an extinct volcano. Around, and beyond, on the opposite side of the gulph, for miles in extent, dark precipitous crags, of every imaginable and unimaginable form, fling down their tall shadows a thousand feet about the place of entrance, enclosing an area of several square miles.

"It was a tranquil spot, that seemed to smile
Even in the lap of horror; ficus clasped
The fissured stones with its entwining feet,
And did embower with leaves for ever green,
And berries dark the smooth and cup-like space
Of its inviolated floor—'tis the haunt
Of every gentle wind whose breath can teach
The wilds to love tranquility."

Down a steep descent of one or two hundred feet, an uneven plain is reached, covered with a luxuriant forest. This impregnable natural fortress has been a place of refuge for the Karens during many generations. While the Burmans, the Siamese, and Talaings, were contending in the plains below, the Karens, in this eyrie home, peeped out on the belligerents from behind their battlements in perfect security; for besides the place where I ascended, there is only one other possible place of ascent, and that still more difficult, so that half a dozen men could always defend it from any force that could be brought against it. The Karen guide said that none but Karens had ever before ascended the precipice, or entered within its precincts. Indeed, that there was here one of the largest, strongest, and most remarkable castles that nature ever built, had never been imagined. Its chief weakness is the lack of water, yet it is far from being wholly destitute of that. About a mile from the entrance, a gradual ascent of an hundred feet leads to the summit of a precipitous glen, and on descending it about two hundred feet by natural steps in the craggy rocks, a small stream of water is seen gushing from the face of a precipice, which the guide said he thought resembled the rock struck by Moses in the Arabian desert. This affords a never failing supply of several quarts, and sometimes gallons of pure water, every hour in the year; but as this is the only spring as yet discovered, the place does not afford a sufficient supply for a large body of people. The arts of civilization could, however, overcome this difficulty by sinking a shaft to the subterranean brook that flows out beneath.

In the days of the Burman emperor Alompra, before his successes in these provinces, a large number of Karens were besieged here by the Siamese, and tradition says that nearly the whole perished for the want of food and water. From the sufferings of that period, or a previous one, the place has acquired the name of "DONGYANG"—*the Weeping City.*

The whole range is named "*Zwa-kabin,*"—*the Mooring of the Ship,* from a tradition, which says that in ancient

times the whole world was covered with water, and the only survivors of the human race were in a ship which floated hither, where the highest point of the range, being above water, the ship was moored to it.

Since the reign of Alompra, the Karens seem to have made special efforts to plant fruit trees in this their last refuge from an invading army. Jack, and mango trees abound, and pine apples are numerous. The opposite-leafed mango which bears a fruit like a plum, the Pierardia, whose agreeable sub-acid fruit is borne in bunches like large grapes, and the edible Zalacca, with its bunches of red echinated fruit, are also common, and a few trees are seen of the Indian Sandoricum, which bears a fruit valued by the natives, as large as an apple, but internally more like a mangosteen, and is often called by Europeans the wild mangosteen. The Karens have also been mindful to make provision for their betel, an article regarded by them almost as essential as food. There are two species of areca-nuts, and the piper betel-vine is scattered every where.

They have also provided materials for mats, having planted in large quanties a species of Pandanus, screw-pine, the leaves of which are used to make mats throughout the Provinces. Nor is the place destitute of large timber trees, apparently indigenous. There are one or two species of acacia, Boodh's cocoanut, and two species of Wood-oil trees, one of which produces the oil from which torches are manufactured. Ratans are indigenous and abundant, and there are numerous little forests of the gigantic bamboo, the largest species known, and peculiar to this country. Here too is game for the sportsman, and meat for the hunter. In short, Dongyang is the most delightful place for an anchorite that ever was formed, and one can scarcely visit it without wishing himself a dervise or a monk.

During the rains the whole plain is under water, excepting a small sprinkling of islands on which the villages are located; and boats can sail from Maulmain to the very foot of the precipice; and as if formed by some genii-architect for the purpose of seclusion and defence, this castellated pile, though forming to the eye in the distance a part of a continuous range, is really for all purposes of access quite isolated. On the north, as adverted to above, it is connected by a low ledge to the north-west portion of the range, and on the south and east a long narrow ravine is interposed between

it and the southern section, through which a path is trodden by the Karens to the villages beyond the mountains.

Its form appears to the eye nearly like that of an equilateral triangle, with its sides about two miles long; and on a chart that was made by Lieut. Nalloth, of the Childers, who surveyed this part of the country fifteen years ago. the base of this site is presented as of a triangular shape, with sides of from two to three miles long, but the whole space inclosed, is there depicted as a vast succession of limestone peaks.

SITANG.

Not a pebble is found on coming up the river from the sea till Sitang is reached, which stands on a ledge of laterite that here rises one or two hundred feet above the alluvial plain, which it crosses, like the wall of the Cyclops, as far as the eye can reach, and terminates in a perpendicular bluff on the margin of the river. Within a distance of thirty miles above are three other ridges of laterite, parallel to this, and also terminating in the east bank of the river. On proceeding up the Irrawaddy, Rangoon occupies a precisely similar position to Sitang, being built at the base of the first rocks, a ledge of laterite, met on coming up from the sea. Amherst is on a bed of laterite, and Mopoon, the sight of a city perhaps older than Maulmain, is entirely composed of this rock. Thus is illustrated the influence exerted by the geology of a country on the distribution of its inhabitants. A careful study of the geological character of a new country would often teach us before a single hut had been erected, where the principal towns and villages would be built.

SHWAYGYEEN.

Shwaygyeen affords one of the most picturesque views, on opening the long reach in the river, just below it, which is found in the East. It lies in the forks of the Toungoo and Shwaygyeen rivers, with the mountains close behind it, like Port Louis and Cape Town; but the mountains are twice the altitude of those at Mauritius and South Africa. Were the highest of the Alleghany mountains set down close to the back of Pittsburg, a person coming up the Ohio river would have a very good picture of Shwaygyeen. The houses stretch in uninterrupted succession close to the water's edge, a mile or two on each river, while a most majestic range of mountains rises six or seven thousand feet high on a massive base, with numerous habitable knolls and

glens, where the dwelling places of the Karens may be traced by the cleared spots visible through their light tint, as compared with the deep green of the forest around. Back of the town, parallel with Shwaygyeen river and close to its banks, is another of those laterite ridges, so often seen on the river, about fifty feet high. This hill appears to have been devoted exclusively to sacred purposes, and was originally covered with monasteries, temples, zayats, and sacred trees—the fragrant mesua, and the religious fig.

TOUNGOO.

When Toungoo looms up in its forest of palms, with its parapets pierced for bowmen, like the fortified cities of ancient Europe, the mind is transported back to the land of the Normans and the mediæval ages. The town stands on a plain, though the name corresponds to the Latin word *promontorium*, identical, in part, with the English *promontory*.

The granite mountains of Toungoo, on the east, exhibit an almost perfectly crystalline structure. They are not rounded like the mountains of Scotland, nor have they the flat summits of the Cape Table mountains. They do not rise in mural masses like the hills of Missouri, nor in pointed peaks, like the mountains of Ceylon. The surfaces of some large crystals are formed of smaller crystals. Look at a fine specimen of Derbyshire spar, cover it in imagination with a thin moss, and then fancy all the parts uniformly expanded a thousand fold. The result will be a Toungoo mountain ridge as seen some eight or ten miles distant across a deep valley with a turbulent stream in the gorge. The prisms, with their sharp edges lying uppermost, often appear as perfect as in cabinet specimens; while the trees and gigantic bamboos on their sides are no larger in the vision than the lowest mosses.

On some of the faces of the crystals, when thrown up to the horizon, may be seen here and there a Karen village, the long single house, looking like a little box laid on a shelf; while the roads from one to another are frequently on the edges of cubes which lift only triangular prisms above the surface, the path scarcely wide enough for two to walk abreast, with a smooth descent on each side at an angle of forty-five degrees. The roads down and over these crystals often defy the skill of an elephant to follow them; and to

reach a point not six miles distant, is not uncommonly the work of a whole wearisome day.

SAGAIN.

The country around Rangoon, and for many miles above, presents the uninteresting aspect of the Ganges, the Rhine, and the Mississippi near their mouths; but the prospects in the vicinity of Prome, Crawfurd thought rarely surpassed for romantic beauty, and Yule describes the view from Sagain as unequalled. "Nothing on the Rhine," he writes, "could be compared to it. Our impression was that the Lake of Como could not be finer, and those who had seen Como said it was not."

MANDELAY.

The new capital of Burmah is represented by Dr. Dawson as occupying a splendid site. "It is called Mandelay," he writes, "after a mountain, which stands at the north east corner of the new city. For miles around, the country is one unbroken level. Ascending to the summit of the mountain, which requires considerable of an effort to reach, the scene presented to view is truly picturesque and beautiful. Like a chequered board, the royal city lies spread out at your feet. To the northward and eastward there is one succession of verdant fields laden with grain. Embosomed amid groves of trees, are seen scattered villages, and in the distance there stretches along a rugged and barren chain of mountains, whose highest peak is nearly every evening illuminated by a bonfire. Westward you catch a glimpse here and there, of the noble Irrawaddy, winding its way along amid a sprinkling of trees, and till you lose its silvery thread at the base of the Sagaing hills. Down south reposes all that is now left of the recently abandoned city of Ummerapoora, whose position is still very distinctly marked in the outline, by a number of spires shooting up from the different Boodhist temples in that neighbourhood. *Mandelay* itself is crowned at its apex by a small gilded pagoda, the care of which is entrusted to three or four Burmese Mussulmen from Arracan, who were brought into that part of the country, many years ago, as prisoners of war. These men are apparently delighted with their lot. Nothing could exceed the purity of the air, which fans your cheeks on that mountain top, especially after the dust in the plain below has been laid by a fall of rain."

Captain Yule says he did not see a garden in Burmah, but the king has supplied the deficiency since his visit. "The king's garden," says Dr. Dawson, "within the palace enclosure at Mandelay, is in the figure of an irregular parallelogram, and covers nearly two acres of ground. It is intersected by two small sheets of water, in the shape of a Roman cross. Lying to the north of the palace buildings, you find it surrounded by a fanciful wooden railing standing about three feet high. The diminutive posts of this railing are exquisitely wrought all over with lacquer work, in-laid by variegated glass, representing certain fabulous animals and birds. As you approach this garden it catches your eye instantly, as something pleasant to look upon, and for which there is a fondness even in one's very nature. The walks are all composed of a raised brick-work, and these again are covered by a coating of firm mortar.

Facing toward the garden gate stands the '*garden palace*,' which is a light airy looking structure, and except the posts, is made wholly of bamboo. Here his Majesty occasionally sits, and receives the officers of his government. A few paces further on, to the left of the garden palace, is a beautiful lake, formed by the extension of one of the limbs of the crucial shaped sheets of water, intersecting the garden. The unrippled surface of this little lake, looks like a polished mirror. On its still bosom, floats a unique and fanciful little bamboo house, which has been named the 'water palace.' And if there is a cool spot in that capital, of a hot burning day, with the quicksilver dancing in a thermometer at ten and twelve degrees above 'blood heat,' it is surely beneath the shade of that little water palace. In the angular spaces left by the position of the sheets of water, the grounds are very tastefully laid out with a great variety of shrubs, plants and trees, in a manner the best possible for giving effect to the scene. Miniature hills jut up in different directions, whose sides are made to resemble as nearly as they can, natural hills in all their wildness and grandeur. Fragments of rock stick out, and here and there masses of boulders are seen in the sides of these elevations. In the little hollows, formed by these projections and inequalities of surface, plants and shrubs have been set out with considerable skill, whose verdant foliage and variously tinted flowers, give them a rich and most romantic appear-

ance. On some of these eminences, the tops are surmounted by miniature villas, from the windows of which you look out upon a scene which rivals in beauty some of the most vivid and graphic pictures delineated by classic poets, as an '*enchanted ground*,' or '*fairy land!*' It is truly a beautiful garden, and as picturesque as it is really grand! Though only some eight or nine short months have elapsed, since the soil was used as one gigantic wheat-field, there are now grafted trees standing in that garden, whose branches are already bending down with luscious fruit. The fruit trees, however, consist principally of those which are found generally throughout India, namely, plantain, mango, guava, jack, orange, citron, papiah, pomegranate, and custard apple; besides those peculiar to Southern Burmah, and the Straits settlements, as the doorian and mangosteen. Good grapes are also grown there, though not to any great extent.

Chapter II.

Ethnology.

Perhaps a greater variety of nations and a greater diversity of languages, are found in farther India than in any other region of equal area, and yet no one appears to be indigenous. The Indu-European races have crossed the Brahmaputra, and established themselves and their language in Assam. The Tartars have poured in from Tibet on the north; and many tribes give indubitable evidence of Tibetian origin. On the east the Tonquinese and Cochin-Chinese are known from their tongues to be offsets from the Chinese; while the Malay tribes have come up from the south, and possessed the land to 10° N. L.; and the latter have extended their language to the islands on the coast west of the peninsula, which are inhabited, two or three degrees farther north, by the Selungs, speaking a dialect of Malay origin. The Nicobar Islands, four or five degrees west of the Selung Island, are peopled by a race with a radically different tongue, which perhaps migrated from Summatra; while the Andamans north of them as well as the interior of the large Nicobars, are inhabited by a negro race, speaking a language widely different from any known in the East, but polysyllabic, and probably related to that spoken by the Negro races of Polynesia.

Burmah then may be described as bounded by the Tais, or Shans, on the east; the Malays on the south; the Caffres and Hindus on the west; and the Tartars and Chinese on the north. Within these limits are embraced a great variety of tribes with a still greater variety of appellatives. More than fifty names may be found in printed books, but a large portion are synonymes, and nearly all may be referred to four great families—the Talaing, the Burman, the Karen, and the Shan.

TALAINGS.

Pegu appears to have been known in central India as early as the rise of Budhism. Burmese history states that twenty years after Dhammasoka came to the throne of the Indian empire, A. C. 308, the third great Budhist council, or missionary convention, convened in Palibothra, which consisted of six hundred thousand rahans or devout priests, from whom a chosen hundred recited the present Budhist scriptures, or Betagat. These rehearsals occupied nine months, after which the council rose, A. C. 308 or 307. From Pali inscriptions in Hindustan, as well as from history, we learn that at the close of this great ecclesiastical synod, the president of the convention commissioned a considerable number of priests to proceed on a foreign mission, for the propagation of Budhism in distant lands. Ouktara and Sauna,[1] two of these missionaries, were designated to Suvannabumme,[2] or the country of Satung. Talaing history says that they came immediately to Thadung, Thatung, or Satung, the ancient metropolis of the Talaings, the ruins of which still exist between the mouths of the Sitang and Salwen rivers; the same city which a few centuries subsequently sent a missionary to Ceylon, to learn more perfectly the doctrine of Budha, and to procure copies of the Budhist bible.

Thatung, and after that Martaban, appear to have been the most powerful cities on this coast; and Maulmain seems to have ever been subject to Pegu, Martaban, or Siam. The etymology of Maulmain is sufficient to prove its Talaing origin. It is from *moot*, eye; *mwoa*, one; *lem*, destroyed; i. e. (the city of) *The one-eye-destroyed*. Tradition says, that the city was founded, or inhabited anciently by a king with three eyes, having an extra eye in his forehead; but that by the machinations of a woman, the eye in his forehead was destroyed, and thus the place obtained the name of the "One-eye-destroyed."*

This tradition suggests to the mind Siva, the Hindu god, who, like the king of Maulmain, is represented with three eyes, one in his forehead. Nor is this the only indication of an ancient connection with the Hindus and Hinduism. The Dongyan hills are called in Talaing, *Kroa-ka-bang*: *kroa*, to pull up, and *ka-bang*, a ship; from the tradition that in ancient times the world was destroyed by a flood, when the whole human race was drown-

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* The Pali classic name of Maulmain is Ramapura,* 'the city of Rama,' and Crawford says there was formerly a large Hindu city here, but that wants confirmation.

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ed, excepting one good man and his family, who were saved in a ship; and when the waters subsided and the high point of these mountains appeared, he secured his ship to that point. This has no precise correspondence in the biblical account of Noah, but it has an exact counterpart in the Hindu notice of the first avatur of Vishnu, when he took the form of a fish, with a large horn rising out of the water, to which the good man tied up his ship.

It is said that the pagodas and temples of Pugan were built on the models of those then existing in Thatung; and since Capt. Yule has shown that the Pugan structures partake largely of Hindu architecture; the theory of Thatung being originally settled by a Hindu colony is thus confirmed.

That the country was known to the western nations of antiquity, will hardly admit of a doubt. Ptolemy's Aurea Regio is a literal translation of Suvanna-bumme; the ancient classic Pali name of Thatung, and is still used in modern inscriptions. (*a.*) *Bumme* signifies earth, place or site; and *suvanna*, gold; so that the name is literally "place of gold." The ancient name of Maubee, in the delta of the Irrawaddy, was *Suvanna-nadee*,[1] or "river of gold;" "Sobana emporium and Sobanas," says Capt. Yule, "occur as the names of a town and river in Ptolemy's list. And Chrysoanas, his name for one of the rivers of the delta, looks like a translation of the same. Goselin has shewn a strong reason to believe that the Aurea Chersonesus really represents the protuberant delta of the Irawadee. Ptolemy describes the various rivers of the Chersonesus as mutually communicating, which applies excellently to the waters of the delta. These rivers, whose embouchures he names Chrysoana, Palanda and Attabas, would therefore be three of the principal outlets of the Irawadee. Again, immediately westward of the Chersonesus he places the Sinus Sabaricus, and in this gulph the mouths of the river Besynga. Now, a little below, in his sketch of the hydrography of India beyond the Ganges, the geographer says distinctly; "From the range of Mæandrus flow down all the rivers beyond Ganges, *until you come to the river Besynga.*" This remark seems infallibly to identify Mons Mæandrus with the Aracan Yomadoung, and the river Besynga with the Bassein branch of the Irawadee.

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(*Note a.*) See Journal of A. S. S. Bengal, May 1834, where in an inscription from Ramree Island, made subsequent to A. D. 1786, Suvanna-bumme stands as the classic name of Thatung: "In the sacred era 236," reads the inscription, "religion was established by the venerable Sona, and the venerable Uttara in Suvanna-bumme, the Thatung country;" or as rendered in the journal, "In the country of Suvanna bhummi, (in Burmah called Sathum.)"—သုဝဏ္ဏဘူမိ၊ သထုံပြည်၌။

Josephus says that the country from which Solomon procured his gold was "anciently called Ophir, but now the Aurea Chersonesus, which belongs to India." The Sanscrit form of *Suvarna*, the name of Satung, is *Suverna*; and this, when the final syllable is dropped,* is nearly indentical with *Soupheir*, the Greek name of Ophir; nearer, certainly, than the Greek to the Hebrew, which we know to be of common origin.

According to a Budhist legend, Gaudama visited this city. Being on a tour to the Talaing kingdom, he attempted to land at Martaban, but was treated very rudely, and stoned by the Nats and Beloos who inhabited the country. Theremathauka, however, the king of Thatung, received him with honors, and paid him great reverence. It is also incidentally mentioned that at the period of this visit, Tavoy and Mergui were inhabited only by Nats and Beloos. From this concatenation of testimony, derived from various sources, it would appear that several centuries before the Christian era, there existed at Thatung a people who were then deemed civilized, while they were surrounded by tribes regarded as barbarous, for Beloo is a term nearly equivalent to wild man, and is still applied to a tribe of Karens living between the Toungoo boundary and the Shan state of Mobya.

After Gaudama had given eight of his hairs to two brothers to be enshrined in this country, they came to Thatung, tradition says, where they found Oukkalaba[1] on the throne.

The Talaings are mentioned incidentally in connection with the establishment of the Burman empire at Pugan, A. D. 107, and in Phayre's history of Aracan they are said to have had possession of Sandoway A. D. 346. In 387 two copies of the sacred Budhist books were brought from Ceylon to Thatung.

Aracanese history introduces the Talaings again, A. D. 464, as bringing one hundred thousand men into the field to replace upon the throne the exiled king of Aracan.

In the next century a dragon is said to have come out of the gulf of Martaban in the form of a beautiful woman, and in process of time her daughter became queen of Thatung, and bore two sons. These princes, Thamala, and Wemala, were robbed of their right of succession to the throne after the death of their

* It is not uncommon to meet with a Pali name differing from the Sanscrit form, by an additional syllable. Thus Yau-na is the Sanscrit name of Greece, or the Greeks, but in the Pali books it is written Yauna-ca, where it is mentioned as one of the countries to which Dammasoka's missionaries were sent. The root is the same as the Javan of our English Bible, the Ionia of the Greeks, and the Yawan of the Hebrews.

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father, by an usurper ; and to save their lives they fled with one hundred and seventy followers, and founded the city and kingdom of Pegu in the 1116th year after Gaudama's death, A. D. 573. It has been published that the city was founded A. D. 1152, but the writer mistook the era in the history, which dates from A. D. 59, for the vulgar era which commences with A. D. 639. The native histories are exceedingly barren of incidents of interest. The names of the thirty-two cities of Pegu follow with the names and dates of the monarchs who founded them. Sitang was founded A. D. 588, fifteen years after Pegu, and several other Peguan towns of less note were also founded during the life-time of the two royal fugitives, the last of whom, Wemala, died A D. 592. He was succeeded by his son Katha, who was remarkable for his attachment to Budhism. He built monasteries, and zayats ; excavated tanks and made offerings to the priests ; created peace and happiness among his subjects, and died after a quiet reign of seven years, A. D. 599.

King Katha's son,[1] a minor of sixteen years, succeeded, under the regency of one of his father's ministers, who also had great reverence for the Budhist scriptures, for the hairs of Gaudama, and the other relics. He also built many pagodas and monasteries; made great offerings, and was filled with the twenty eight virtuous deeds. All the surrounding nations were at peace with him, and the wild beasts of the forest committed no depredations. He is said to have built the city of Lagoon, A. D. 600, on the site of an old city of the same name, and which must therefore have been older than Pegu. In the succeeding reign, "the thirty-two cities of Bassein" were tributary to Pegu.

Several succeeding sovereigns are lauded like the preceding for their piety, and this is nearly all that the historian has to say concerning them. His work is more of a homily than a history. Pungnareka* was anointed king A. D. 736, and he governed in accordance with the divine law, studied the Budhist scriptures, and attended constantly with his queens, concubines, and courtiers on the preaching of learned teachers and holy priests.

Such were the characters of the monarchs who reigned over Pegu for sixteen generations, occupying, it is said, nearly five hundred years ; but the history of the seventeenth king, Tektha[2] the Pantheist, is a true oriental romance, and he is said to have wrought one of the most remarkable changes ever recorded in history. This monarch abjured the faith of his fathers, and em-

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*ပုဏ္ဏာရက။ a Pali name, signifying Bramin-heart.

braced the pantheistic doctrine, that God is in every thing in the universe, or the universe itself. The same doctrine which had overspread India, Greece, and Rome, and at the present day reappears in the popular form of idealism, and which is cherished by a sect still existing among the Talaings who reject the worship of images.

Tektha discarded altogether the Budhist scriptures, pagodas, and relics; paid no reverence to the priests, or wise men, but demolished their temples, threw the idols into the waters, and prohibited his subjects from worshiping them on pain of condign punishment.

The whole great kingdom of Pegu was in utter consternation, no one daring to worship idols, build zayats, reverence relics, or make offerings to priests, when there arose a Defender of the Faith in the person of a young maiden,—a Joan of Arc. This girl, who was but twelve years old, the daughter of a wealthy citizen, kept with her mother the five laws, reverenced the three great objects of worship, and exercised constant faith in the law. She said: "The king has thrown the idols into the water, because he is afraid of them."

When she was sixteen years of age, she went out one evening with her maidens to bathe, and while amusing herself in the water, she perceived an idol. She immediately ordered it conveyed to a zayat, and although informed that death would be the consequence, she expressed her determination to worship it as long as she lived. The idol was accordingly taken from the water, washed, and placed in a zayat. Thus, probably, originated the Peguan festival of annually bathing the idols, and pagodas.

While this fearless young woman was engaged in cleansing the idol, a government officer arrived to call her before the authorities, and soon after a second, such was the excitement of the occasion. These officers both reported that they found the wild girl worshipping beneath the discus of Indra,[1] the discus of Vishnu, the discus of Kelawaka, and the discus of Rama. The king was greatly enraged, and commanded that a fierce elephant be instantly sent to trample her to death; but the young devotee placed herself under the protection of god, the law, and the church; and according to the historian, was preserved by the seven principal nats; the nat which presides over the universe, the nat which presides over the earth, the nat of the trees, the nat of the air, the nat of the cities, the nat of the villages, and the nat of the white umbrella.

The elephant was goaded, and beaten, and every possible measure used to induce it to trample upon the girl, but all in vain;

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the animal refused to raise a foot, but constantly fled from her, as if inspired with awe by her presence. The king then ordered the damsel to be covered with straw, and burnt alive, which was accordingly attempted, and every possible effort made to set the straw on fire, but it would not burn, and the executioners were obliged to relinquish their task.

When this was reported to the monarch, he commanded her to be brought to the palace, and on her coming before him, he said: "If the image which you have dared to take from the water will come through the air into my presence, and I see it, your life shall be spared, but if not, you shall be cut into seven pieces."

The young woman besought time to return to the zayat, which was granted, and after praying earnestly to god that the image might proceed miraculously into the presence of the king; through the agency of the nats, lo! eight images, with the young woman herself, and all her attendants, were carried through the air beneath the divine discus, and placed before the king. The king saw the miracle, with his principal queen, the commander-in-chief with his officers, and the inhabitants of the country, all of whom wondered and shouted.

The wily damsel then proposed, that as the images of her teacher had, in the sight of the king and his court gone through the air in a miraculous manner, that the king's teachers should exhibit a similar display of power in their own persons. To this the king assented, and commanded the *heretical* teachers to fly through the air in the presence of the people. This they were unable to do; and the king, therefore, compelled them all immediately to leave the country, after which he elevated the young defender to royalty by making her one of his principal queens, and became a devoted Budhist.

Tektha, or Teksha, as the name is variously written, died according to one account A. D. 841. According to Csomadekeros, the Budhist religion was abolished in Tibet A. D. 899. There was probably a strong effort made in this century to put down Budhism by Braminical teachers; for Tektha is represented as being led astray by teachers of heresy, who on reëstablishing the faith, were ordered to leave the country.

After the founding of Pegu, "the great country of Thatung," as it is denominated, declined. Major Phayre, in his Aracanese history gives Thodun as the name of a people that were amalgamated with the Talaings; and which can be no other but the inhabitants of Thatung. In 882, I find the governor of Thatung mentioned as making great offerings to the pagoda at Rangoon. It must have been a place of some importance to a later date, for one of the missionaries who visited the ruins represents the wall as remaining, and one of the pagodas as the largest he had ever seen.

After this period, the Pegu or Burmese monarchs ruled in Pegu for three generations.

It was during this era, while the Burmans governed in Pegu, that Martaban first appears in the annals of history. Narapadisæthu, who reigned in Pugan, and died in 1269, founded Martaban in the latter part of his reign, "on a rocky promontory," as it is stated, "with the country of the Shans on the east, and the sea on the west," and planted a colony of thirty families on the point, "to take care of the pagoda." This remark shows that at that period the Tenasserim Provinces were regarded as a part of the Shan country. Narapadisæthu was succeeded on the throne by his son Nandaraza.

This king, as soon as he was seated in the chair of state, ordered Alingma, the governor of Martaban, to appear at court, but the governor fearing the king, refused to obey; and when the young monarch heard of his contumaceous conduct, he forthwith ordered troops to Martaban to bring the governor up by force. When Alingma heard of the approach of the king's soldiers, he fled into the Shan country, to the city of Lasung, thinking that the Burmese would not dare to enter the Shan and Laos territories; in which conjecture he appears to have been correct, for the king of Pugan did no more that appoint a new governor, Talapya, to fill the vacancy.

Alingma proceeded to Zimmay, and after swearing allegiance to the king of Zimmay, solicited and obtained troops from him to return and take Martaban. On their approach the new governor fled, but the Shans pursued, took him, and put him to death, and the place where he was slain is called Talapya to the present time. After the Shans had taken Martaban, they delivered it into the hands of the old governor, and returned to their own kingdom.

A remarkable character now appears in the history of Martaban, like whom one only is usually found in the annals of a single nation. His name was Magadu, a man who commenced life as a travelling merchant, his father being also a merchant in the city of Dungwan, his native place.

Magadu, with thirty followers, having started out on an expedition to Siam, was ascending the dividing mountains, when suddenly there arose a storm of rain, thunder, and lightning, attended with many remarkable sights, all of which Magadu interpreted to portend remarkable things concerning himself. He and his party, however, passed on unharmed, and descended the mountain on the eastern side to Nedung, where resided many priests and Brahmins. In this village there dwelt a learned man, or seer, who confirmed his supposition that the signs seen on the mountain were sure presages of his future distinction in the world.

He then proceeded to the city of Thoukkatay,[1] where he sold his goods and dismissed his followers; the latter returning to Dungwon, while he himself remained in Thoukkatay, where he entered the service of the person who had charge of the king's elephants.

He was subsequently taken by the king into his own service, who was loved by him as his own son, and when an army and fleet of foreigners came and made war upon the extremity of the kingdom of Thoukkatay, the king went out with an army to meet them, and left Magadu invested with great power in the city.

But while the king was absent in his wars, Magadu eloped with the princess the king's daughter, and took up his residence in Dungwon his native city, where he soon made the acquaintance of Alingma, the governor of Martaban. They met ostensibly for a friendly conference, on a sand bank in the Salwen river, each with a large party of followers; and when Alingma and his people had drank to intoxication, they were all slain by Magadu and his men, who proceeded immediately to the city, took it, and Magadu, who, according to the legend, was one of the Beloos that met Gaudama on the rocky promontory to obstruct his landing, now became king of Martaban A. D. 1281. Soon after taking possession, he rebuilt the city on its present site, and having sent an embassy to his father-in-law, the king of Siam, he succeeded in winning back his favor, and received from him an honorary title for which he had petitioned. He was accordingly ever after designated in the chronicles of his reign as King Wayærau,[2] the appellation conferred upon him by his father-in-law the king of Siam, and this is the name which he bears in Burman history.

To the north of Martaban was a country called Kanpalane[3], and on one occasion the king of that country having gone into the jungle on a hunting excursion, Magadu sallied forth, and made a forray into his dominions, took his capital, the city of Kanpalane, pillaged it of all its valuables, and carried the king's daughter away captive to Martaban When the king of Kanpalane returned and found his city sacked, he assembled an army and proceeded to attack Martaban; but here again Wayærau's superior finesse enabled him to gain the victory, and the king of Kanpalane died by treachery.

While Wayærau was thus reigning with great power in Martaban, Akhyæman,[4] who, on ascending the throne had taken the name of Tarabya,[5] was king of Pegu. The two kings sent ambassadors to each other, entered into a commercial treaty, and

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opened "a gold and silver road" between the countries, by which merchants and poor people were enabled to sell their goods. The Pegu monarch gave his daughter to Wayærau who returned one of his own, and so they lived in peace.

About this time the emperor of China having subjugated Pugan, his troops with the Burmese entered Pegu and invested several cities. Tarabya immediately wrote to the king of Martaban for assistance, who responded to the call without delay ; and the united armies succeeded in driving the invaders out of the country, and taking several of the Burmese towns and villages, all of which the king of Martaban spontaneously gave up to the king of Pegu. Tarabya could not, however, appreciate his generosity, and laid a plan to attack and destroy Wayærau with his whole army ; but he was defeated in his nefarious designs, was taken prisoner, and would have suffered death, had it not been for the intercession of a holy priest, through whom his life was spared ; but Wayærau annexed the kingdom of Pegu to his own dominions. Afrer a brief interval, Tarabya was discovered in a conspiracy againt the king's life ; he therefore suffered death ; and thus the kingdom of Pegu passed back from the Burmese to the Talaing sovereigns, A. D. 1287.*

But what is regarded by the native historian as the crowning glory of Wayærau's life, is, the success which attended his efforts to obtain a white elephant. Six years after he became king of Pegu, A. D. 1293, he became possessor of a white elephant, and added to his titles that of "Lord of the white elephant." The subsequent part of his reign was marked by uninterrupted prosperity ; but he educated in his own family two of Tarabya's sons, his daughter's children. When these boys grew up they did not remember their grandfather's kindness to them, but his severity towards their father, and they assassinated him, A. D. 1306. The king erred, says the historian, in not observing the words of the wise men of old—"When you cut down a ratan plant, leave not a thorn ; when you cut down a reed, leave not a shoot."

Magadu was succeeded by his brother Krunglau, and during his brief rule Maulmain is first mentioned, and appears to have formed at that period a part of the Martaban kingdom.

King Krunglau was informed that the Karens reported a rare elephant to have been seen in the jungle, with three tusks, one upon the head. He was therefore induced to leave his palace and cross over into Maulmain, in search of it. But no sooner had he left the city than the gates were shut against him, and he was speedily taken and executed in one of the villages, A. D. 1310. A revolu-

* An inscription on a bell brought from Aracan, places this event in 1370. See Jour. A. S. Bengal, April 1838, where the translator erroneously says A. D. 1645.

tion followed, when the king's brother-in-law took the reins of government; but he made his own son, Zauaubenhmaing,[1] the nephew of the deceased monarch, king; and under his reign the boundaries of the kingdom of Martaban were widely extended. He subjugated Labong, in the Shan states, A. D. 1320; and on his return to Martaban he despatched an able general, Kungmen,[2] with an army against Tavoy and Tenasserim. both of which places were taken the following year, A. D. 1321. After two years of peace the king died, A. D. 1323, leaving the kingdom in a most flourishing state to his brother Z u Zeik.[3]

This prince on being annointed king assumed the title of Byanyaranda, or Byanyalau.[4] Shortly after he ascended the throne he proceeded with his suite to Pegu, and from Pegu to Rangoon, from Rangoon to Dala, and from Dala to the city of Piengdau; whence he returned to Pegu, where he built a new palace. He appears to have met with no opposition in his progress, but while residing in Pegu he had to send an army to quell a rebellion in Bassein, and another to Tavoy and Tenasserim; and on hearing that an invading army was approaching from Siam, he returned to Martaban, where he died, A. D. 1348.

Though unnoted by the Talaing historian, it appears from Siamese history that the Siamese took Martaban about this time, for king Uthong is said to have ruled over sixteen countries, A. D. 1350, among which were Martaban, Maulmain, Tavoy, and Tenasserim. The history of Martaban after this period is lost in that of Pegu, and in 1426 we find king Mukka,[5] the son of king Theha,[6] taking the name of Dhamma-raza,[7] and distinguishing himself by his munificent offerings to the pagoda at Rangoon.

In 1453, Hattiraza[8] reigned with the title of Byanya;[9] and in 1474 Ooparaza[10] ruled with the name of Dhammawatie;[11] and in Burmese history we meet with a Talaing general, Thameinparau, offering the king of Pegu, with forty thousand men and a particular elephant, to march to the frontiers of China, and erect an iron post there, as the boundary of the Peguan empire. This he effected A. D. 1477; but was taken prisoner by the Burmese on his return.

In 1497 Thunekktsa[12] was on the throne with the title of Byanya,[9] of whom it is recorded he made offerings to the Rangoon pagoda.

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1 ဇော်အော်ဘင်မှိုင်။ 2 ခုံမင်။ 3 ဇော်ဇိပ်။
4 ဗျာညာရန်ဒါ။ ဗျာညာလော်။

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5 မုက္ကရာဇာ။ 6 သီဟရာဇာ။ 7 ဓမ္မရာဇာ။
8 ဟတ္တိရာဇာ။ 9 ဗျညား။ 10 ဥပရာဇာ။
11 ဓမ္မဝတီ။ 12 သုနက္ခရ်ဇာ။

In 1496, Pegú was visited by the first European, Hieronymo da Santa Stephano, a Genoese; and the first Portuguese in the country was Ruy Nunez d' Acunha, A. D. 1511. For more than a century after this date, in all the wars going on, the Portuguese appear to have been mixed up as partizans. "Thus in 1544, when Martaban was beseiged by the king of Burmah, we find among his forces some galleys manned by Portuguese under John Cayero, and five years later, when the same prince invaded Siam and attacked the capital, he had with him 180 Portuguese under James Surez de Melo, whilst the king of Siam in his besieged city of Odio had 50 Portuguese under James Pereyra."*

Maulmain was probably a place of some importance at this period, judging from an inscription on the large bell near the great pagoda, which states, that "Thengathoora was ruler in Maulmain, A. D. 1527, under whose direction the bell was cast."

In 1526, Darsha[1] was king of Pegu and made offerings at Rangoon.

According to Siamese history written by Dr. Jones, the king of Pegu entered Siam, A. D. 1531, with an army of 30,000 men, 300 elephants and 2,000 horsemen; but after coming in sight of Ayodaya, or Yuthia, the capital, quietly returned. In 1535, the king of Pegu made another attack on Siam, and is represented as ruling over both Bassein and Prome. He levied 300,000 troops, 700 elephants, and 3,000 horses. The Governor of Prome commanded the right and left wings, and the Governor of Bassein the rear of the army. The king of Pegu took two of the princes of Siam prisoners, but set them at liberty, asking for two white elephants, which were given him, and he returned.

In 1548 the king of Siam had seven white elephants, and the king of Pegu, Talanya,[2] sent and asked for two which were refused him. He then prepared for war, collecting forces from Ava, North Laos, Pugan, Prome, Aracan, Toungoo, Martaban, Maulmain and Tavoy; besides Pegu, Bassein, Sitang, and Syriam; indicating an extensive empire. The next year he commenced his march into the country with 90,000 men, 7,000 elephants, and 15,000 horses. In 1550 he appeared before the Siamese capital, and the Siamese monarch, seeing no way to defend himself, went into the camp of the Pegu king, who received him kindly, asked four white elephants, and the Siamese prince for his adopted son; which terms were readily complied with, when the king of Pegu withdrew his army.

Five years after this date, we find the king of Pegu again at war with Siam, accompanied by an army of a million of men. He took the city, bringing away immense riches and innumerable

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1 ဗိုရသာဓိရာဇာ။ 2 တလဉ္စာ။

* Condensed from Yule, page 209.

captives, among whom was the young king of Siam, who had recently come to the throne, but he died on the journey.

This victorious king of Pegu is said to have died after a reign of fifteen years, A. D. 1558, when he was succeeded by his son Mangurug. A Burmese history states that this year the king of Toungoo conquered Pegu. Toungoo history says that the king of Toungoo removed to Pegu and made it the seat of his government, A. D. 1531. This king is called *Mentara-shwehtie.*[1] "king of the law, golden umbrella," and is Sangemano's *Mentrasvadi.* Yule's authorities say that this king was murdered by the "Shemin of Satân, Sitang probably, and the latter contested the throne with a member of the old royal house of Pegu, whom the Portuguese call Shemindoo. He was killed before Pegu by the fortunate shot of Gonzalo Neto."

Toungoo history adds that in 1551 another king of Toungoo, *Htsenphu-shen,*[2] "lord of the white elephant," took Pegu and removed his seat of government thither. This accords with Yules' date, who says: "But in 1552 a second prince of Toungoo again got possession of Pegu. This is the king called by the old writers Aleagar, or 'Brama king of Pegu,' who extended his conquests over Ava, Mogoung, Jangomai (Zimmé), the west of Yunan, and other adjoining states, and the wealth and splendour of whose court made Pegu so famous in Europe as an empire of fabulous magnificence."

The first missionary to Pegu was Bonferrus, who, after a three years residence returned in 1557, declaring "that he had rather with St. Anthony preach among pigs than among such a swinish generation."*

Cæsar Frederick, a Venetian merchant, was in Pegu A. D. 1569. He wrote: "We found in the city of Martaban ninety Portugal merchants, and other base men which had fallen at difference with the governor of the city. The king of Pegu had gone with a million and four hundred thousand men to conquer the kingdom of Siam;" and during his absence the Portuguese in a quarrel killed five of the natives. The king, when he was informed of the murder, sent word to the governor of Martaban, to have the aggressors kept until he returned, but "the captain of the Portugals would not deliver these men, but rather set himself with all the rest in arms, and went every day through the city marching with his drums and ensigns displayed, for at that time the city was empty of men, by reason they were all gone to the wars. In a short time the governor of Martaban obtained aid from Pegu, and with his elephants pulled down the warehouses of the Portuguese during the night, who immediately fled to their ships; but they landed again and set fire to the houses in

1 မင်တရားဇွတိ။ 2 သင်ဖြူရှင်။ called also သင်ဖြူဗျာဇရှင်။
htsenphu-mya-shin, lord of many white elephants.
* Yule, page 210.

the suburbs, with which half the city had like to have been burned. The next morning, the Portugals began to bend and shoot their ordnance against the city, which battery of theirs continued four days; but all was in vain, for the shot never hit the city, but lighted on the top of a small hill near it, so that the city had no harm."

The king of Pegu, to whom Cæsar Frederick refers, appears to have been Tshenbyumyashen, lord of many white elephants. Burney says: "This great king of Pegu after conquering Ava, Mogoung, Zimmay, Theinni, &c. A. D. 1562, sent a large army to the frontiers of China, and took possession of nine Shan towns, (Koshanpyi, or Copyidaung), Maingmo, Tsiguen, Hotha, Latha, Mona, Tsanda, Moroun, Kaingmah, and Mainglyin, or Mainglyi, all of which, with the exception of Kaingmah, are now, and apparently were at that time, under the dominion of China. The Peguans, after conquering the country, built monasteries and pagodas, and established the Budhist religion there in its purity."

The king of Pegu rebuilt his capital A. D. 1567, and Cæsar Frederick was there when the city was finished. He says: "The streets thereof are the fairest I have seen. They are straight as a line from one gate to the other, and so broad that ten or twelve men may ride abreast, and those streets that be athwart are fair and large. These streets, both on the one side and the other, are planted with nut trees of India, which make a very commodious shade." He gives a glowing description of the king's palace, and the walls of the city with twenty gates, and the moat, "in which there are many crocodiles." The king had four white elephants, and four hundred thousand fighting men.

"Also he hath great ordnance, made of very good metal. To conclude, there is not a king on the earth that has more power than the king of Pegu, because he has twenty-five crowned heads at his command; he can make up in his camp a million and a half of men of war for the field against his enemies. This king of Pegu has not any army, or power by sea, but on the land, for people, dominions, gold and silver, he far exceeds the great Turk in power and strength. This king has divers magazines full of treasure, as gold and silver, and every day he increases it more and more, and it is never diminished. Also, he is lord of the mines of rubies, saphires, and spinal." The son of this great king lost all his father had gained.

Ralph Fitch, a London merchant, is the first Englishman known to have visited Pegu. He was there in 1586, and extended his travels to Zimmay; which very few Europeans have done since.*

According to the Siamese history, printed in the Chinese Repository, Naret, the king of Siam, issued directions A. D. 1587, "to make preparations for an expedition against Martaban. Phyachakris was therefore despatched to Maulmain with 15,000

* Yule, page 212.

men, 100 elephants, and 200 horses. Five thousand men were also raised in Tavoy, as a reinforcement to Phyachakris. The Peguans of Maulmain were subsidized in part, while part were employed in Siam." From this it would appear that Maulmain and Tavoy were tributary to Siam; and Tavoy history mentions that the king of Tavoy at Wadee afforded a contribution of men at this time to aid the king of Siam in his attack on Maulmain.

In the following year the king of Siam himself came to Maulmain, with "100,000 men, 800 harnessed elephants, and 1,500 horses." Pinto, as quoted by Symes, appears to have been present when Martaban was taken. He says: "During this seige they of the city ate three thousand elephants; there were found six thousand pieces of artillery; and as for gold, silver, precious stones, and jewels, that were found there, one truly knows not what they were, for those things are ordinarily concealed."

In March 1600, Boves, a Jesuit, writes that he was in the country when the king of Pegu, besieged by the kings of Aracan and Toungoo, surrendered and was put to death.*

A Burmese history states that in 1601 there was no king in Pegu, which synchronises well with the statement of Boves.

To make these notices of Talaing history as complete as possible, the following extracts are taken from Capt. Yule's Report, unabridged:

"After his victory, the king of Aracan made over the port of Syrian to Philip de Brito, a Portuguese partisan leader. De Brito, however, quarrelled with the king of Aracan, and went to Goa to obtain the support of the Viceroy. During his absence his followers proclaimed him king of Pegu. He continued to carry things with a high hand for some years, capturing the son of his former patron the king of Aracan, for whom he demanded a ransom of 50,000 crowns; and sometime afterwards he treacherously seized the person and treasure of the king of Toungoo, with whom he had made alliance. In 1610 a traveller says of de Brito: "He yet also domineereth and careth for nobodie." He had married his son Simon to a daughter of the king of Martaban, which province had apparently risen again to brief independence during the anarchy which succeeded the fall of the Peguan monarchy.

In 1613, however, the king of Ava appeared on the field, and with a large army besieged de Brito in Sirian, where the Portuguese leader made a desperate defence. The king of Arracan, whom he had so grievously offended, sent 50 vessels to his assistance, but they were captured by the Burmans. At last de Brito was betrayed and carried to the king, who caused him to

* Yule, page 213.

be "spitted," or. impaled, and set up on an eminence overlooking the Fort. In such misery he continued to live for two days. His wife Donna Luisa de Saldanha was sent to Ava with the other captives.

The king after having been crowned at Pegu, sent his brother to master the southern states. He soon conquered Tavoy, and proceeded to besiege Tennasserim. Here Christopher Rebello, an outlaw from Cochin, with 40 Portuguese and 70 slaves, in four galliots, attacked and routed the Burmese flotilla of 500 vessels.

A short time afterwards the king of Ava, fearing the vengeance of the Portuguese, should they unite with his rivals of Aracan and Siam, sent ambassadors (to Goa apparently) to the Portuguese Viceroy, to apologise for the killing of de Brito, and offering to join in an attack on Aracan. The Viceroy agreed, and sent an envoy in turn, but he was treated with true Burman nonchalance, and nothing resulted.

Though Mr. Fitch, and possibly other wandering English merchants, had visited Pegu in the preceding century, no English convoy had at that time come to the Indian seas for trade. The East India Company was first established in 1599, when Pegu was in the depths of its desolation. Hence, though our trade had spread far to the eastward, no attempt at intercourse with the Irawadee delta had taken place up to 1618. Curiously enough, the first intercourse originated from the eastward. A year or two before the period named, the English factor at Siam, Lucas Anthonison by name, sent one Thomas Samuel to Zengomay (Zammé,) to inquire into the prospects of trade there. Zimmé had been subject to the great king of Pegu, but during the misfortunes of that monarchy in his son's time, had been taken by the Siamese. The king of Ava, whose power had risen, as we have seen, on the fall of Pegu, and who was extending his conquests over most of the provinces that had been subject to the latter, obtained possession of Zimmé whilst Samuel was there, and carried him, with other foreigners, to Pegu. There he died, and his property was seized by the king.

The relator, William Methold, in the supplement to Purchas's Pilgrims, calls the monarch king of Pegu, and at Pegu he appears to have held his court. But he was in fact properly the king of Ava.

News was brought of Samuel's death to Masulipatam where Lucas Anthonison happened now to be factor for the Company. He took the opportunity of sending two agents carrying a letter and present for the king, professedly to apply for the restoration of Samuel's effects, but also with a small adventure to make trial of the trade.

The agents were unfaithful. They misappropriated the proceeds of the trade, and wrote most discouraging accounts of their treatment, but they were sent back in April 1619, with

most of Samuel's property, as well as a present from the king and a letter inviting trade.

The history at this period is very obscure, but it would appear that soon after the time mentioned, British intercourse with the Burman countries became more free than it ever was again up to the annexation of Pegu. Dalrymple ascertained from old documents at Fort St. George, that the English had settlements at Prome and Ava, as well as at Sirian, and even at a place on the borders of China, which he conjectures to have been Bamò. The Dutch, who had a considerable trade with Burmah, likewise possessed factories in the Upper Provinces, and are said to have been at this time in occupation of Negrais.

An inscription on a bell brought from Aracan, but cast in Pegu, A. D. 1623,* was probably made by the king who refunded Samuel's property, and indicates a wish to have justice done. The bell was cast, he says, "that people might give notice of their wrongs by striking it, the sound of which reaching his ears he would be enabled to redress their wrongs." Seven years after this date, Burmese history states, the Aracanese conquered Pegu, A. D. 1630, when the bell which weighs about three thousand pounds was no doubt taken to Aracan. In 1638 the then ruling king of Pegu, Raideibpa,[1] who reigned under the name of Tha-do-dhamma-raza,[2] murdered his father, and four years afterwards extended his empire to Ava, A. D. 1644.

On some dispute with the Burmese Government, the Dutch threatened, or attempted, to invite the interference of the Chinese. On this, both Dutch and English were ejected.†

In 1658 or 1659, when a Chinese force invaded Burmah, and attacked the capital, the guns on the ramparts of Ava are said to have been served by a party of native Christians under a foreigner named *Methari Kàtan*, a name which Colonel Burney happily suggests to be intended for "Mr. Cotton."

The trade seems to have revived towards the end of the century. In 1680 and 1684, the Company's agents had made unsuccessful attempts to reëstablish factories in Burmah or Pegu. In 1686-7 their attention was turned to Negrais; a survey was made of the island, and it was taken nominal possession of.

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[1] ရဲ၆ဗ္ဗ။ [2] သတိုခမ္မရာဇာ။

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* See Journal A. S. Bengal, April 1838.

† This is Dalrymple's account. I find, however, in Valentyn's great "Beschryving van Oost Indian," or Description of the Dutch East Indies, (Dordrecht and Amsterdam 1726) vol. V. pt. II. p. 126, that the Dutch had a factory at Sirian from about 1631 till 1677, with subordinate factories at Ava and other places. The Dutch Government of Coromandel sent several embassies to Ava also. Valentyn ascribes the breaking up of the trade to the constant wars that were going on in those regions.

In 1695, Nathaniel Higginson, governor of Fort St. George, sent Mr. Edward Fleetwood and Captain James Lesly as envoys to the court of Ava. Their objects were to obtain the settlement of a factory at Sirian, the release of English captives, and of a sloop belonging to one Bartholomew Rodriguez, which had been confiscated, and the restoration of the effects of one Adrian Tilbury, a merchant of Fort St. George, who had died at Martaban.

They carried presents to the amount of about 1000 pagodas, and a letter from Governor Higginson, written in a very humble style. The presents were a regular mercantile speculation. The envoys were to try to get as much as possible in return," "asking for more" if they found it feasible, and were themselves to get ten per cent. on the proceeds as an incitement to do their best.

Mr. Fleetwood does not appear to have been a gentleman likely either to impress the Burmese court with an exalted impression of his country, or to bring back with him any interesting particulars of theirs. He seemed to think he had made a great *coup* in providing himself with a letter of introduction to the king's mistress. The mission had as little success as it deserved under such auspices; but the reëstablishment of the factory at Sirian was conceded. Two years later (1697) Mr. Bowyear was sent as chief of the factory at Syrian and with a mission to the court similar in its objects to Fleetwood's. It appears from the instructions that the return-presents made to Fleetwood's mission had been profitable to Mr. Higginson, and he was not indisposed to repeat the speculation. But he honorably adds: "If the returns of the presents shall stand in competition with or hinder, the restoring of Bartholomew Rodriguez his cargo, I had rather forego the receiving of any returns for the presents, than hinder the restoration of the cargo." No record of Bowyear's mission has been found, and it is probable that he did not proceed to Ava, as the king died just after his arrival in the country.

In 1709, a Mr. Richard Alison, or Allanson, was sent as envoy to Ava. No account of his mission has ever been printed. It appears from Hamilton's "New account of the East Indies", that this gentleman was twice deputed to the court of Ava. But the date of his other mission is unknown.

The agent of the Company at Sirian, Mr. Smart, appears to have acted with duplicity during the contests of the Burmese and Peguans for the possession of Pegu, which ended in the temporary supremacy of the latter. In 1743, the factory was burnt by them, and the establisment was withdrawn.

In 1752, the king of Tavoy, then for a short time independent, invited an establishment. But his terms were unreasonable, and no movement was made to act on his offer.

In 1753, a factory was established on Negrais, which was in fact taken possession of in the Company's name.

In 1755, we find a factory under Captain Baker existing at Negrais, during the continued contests between Peguans and Burmese, the latter being again in the ascendant. The chief at Negrais urged on his Government that we should take a decided part with the Burmans. But, about the same time, some English ships at Dagon (Rangoon) took part with the Peguans.

In July of this year, Captain Baker and Lieut. North (who died at Pagán on the way up) were sent by the resident at Negrais on an embassy to Alompra at Mout-sho-bo. The usurper laughed at the idea of assistance from the English, and the mission had no result. Captain Baker took observations on his way and made a map of the river, which is given by Dalrymple.

In 1751, Dupleix, the Governor General of French India, had sent an ambassador to the king of Pegu, and obtained the concession of a factory at Sirian. But in 1756, the Government at Pondicherry, contrary to an engagement of neutrality into which the factory had entered with Alompra, having sent succours to the Peguans, and these having fallen into the hands of the conqueror, he massacred the officers, and carried the rest of the French as prisoners to Ava. From these prisoners some of the Burman Christians of the Dibayen district are said to be descended.

In 1757, Alompra addrased a letter to the king of England, written on gold adorned with rubies, which he delivered to a Mr. Dyer and others who visited him at Rangoon.

In June of the same year Lieutenant Newton, who was in charge of Negrais, deputed Ensign Lister to go to the king with the pompous title of ambassador extraordinary. He overtook Alompra on the river going up from Rangoon, and by dint of some considerable bribery obtained the king's signature to a treaty conceding in perpetuity Negrais, and ground for a factory at Bassein, with freedom of trade, in return for a pledge of military assistance from the Company against the king's enemies. This treaty had never any practical effect.

1759. The greater part of the establishment at Negrais was withdrawn. And on the 6th October in that year the whole of the remaining Europeans, with many natives, were treacherously massacred by the Burmese. The king was said to have suspected that the factory had been in communication with his enemies the Peguans.

Pegu was subjugated by Alompra in 1757, and here the history of Pegu as an independant kingdom ceases.

Chapter III.

BURMESE.

The first inhabitants of India were, probably, of the Tartar stock, or what the Greeks denominated Scythians. "The Asbasgæ," says the Byzantian Johannes Tzetzes, "the Alans, the Sakæ, the Dakæ, the Rhos, the Sauromatæ, the Scythians Proper, and every nation dwelling by the blasts of Borcas, are called Scythians." This is indicated by the languages of the tribes on the southern declivities of the Himalay mountains, being of the Tartar family. At an unknown period after the Egyptian had passed down from Central Asia to the banks of the Nile, about the time that Abraham crossed the Euphrates and came to Charran, the Sanskrit and Pali-speaking tribes were, probably, pressing their way into the Cabul valley, between the Greek Paropamisus and the Indian Caucasus.

Burmese history states that anterior to the advent of Gaudama, a nation which dwelt between Nepaul and the Ganges was attacked by the King of Oude, from the West, who conquered the country; and the people fled east till they reached the valley of the Irrawaddy, where they settled, and built a city one hundred miles north of Ava, which they called Tagoung. This event, probably, occurred several centuries after the Sanskrit nations first entered Afghanistan, when they were moving into the valley of the Ganges and thus crowding the aborigines before them to the Eastward. The Vedas are supposed to have been written about the time of Moses, and they contain internal evidence of being composed in part, at least, in the Punjaub; which was the scene of the great war, celebrated in the famous Indian epic, the Mahabharata. This view is confirmed by the face of the Burman, which has his Tartar genealogy stereotyped upon it in characters that cannot be mistaken—clear as the features of the Bengali give proof that he is of the Caucasian race, his coal black skin notwithstanding.

Alexander's Greek kingdom in India was succeeded by Bactria declaring itself independent of the mother country at a period not long before A. C. 256, under Theodotus. When Antiochus the Great went to India, Euthydemus then on the throne of Bactria, plead with him not to weaken his power, or he should not be able to withstand the Scythians on the north, and thus maintain a barrier to the provinces of Antiochus on the south, in the modern Afghanistan. This is a ray of Scythian history from the Greek. The Chinese say, that about two hundred years before our era, the western Tartars having conquered the eastern, nearly subdued China, but were finally driven by Woote, the martial Emperor of the Han dynasty, into their own country. This occurred, according to some authorities, in A. C. 139. No writer has noticed, so far as I am aware, that shortly subsequent to this period, the kingdoms south of the Tartars were conquered by them; showing that when they were defeated in China, they turned their arms on their less powerful neighbours in other directions.

The Bactrian kingdom fell into their hands between A. C. 125, and A. C. 100, under the command of Kadaphes. This chieftain was the Napoleon of his age. He had coins struck with Greek inscriptions, and Greek divinities on one side, to conciliate the conquered Greeks; and on the other side a Pali legend, the language of the people, in which he calls himself "The crown of the [Budhist] law;" about equivalent to "the head of the church." His coins have been dug up as far east as Benares. It appears to have been the practice of some of these Scythian princes to indicate the countries over which they ruled, by the prominent quadruped of each district. Thus on one is a Tartar horseman, on another a Bactrian camel, on a third the humped Zebu ox, which they must have met first in Afghanistan; on a fourth, the Indian lion of Scinde; and on a fifth, the elephant of India.

The names of thirty-three kings are given by the Burmese historians, as ruling in succession over Tagoung. During the reign of the thirty-third monarch, the Tartars and the Chinese are said to have made an inroad into the country, and destroyed Tagoung. This event must have occurred after the Tartars conquered Bactria, for according to the Burmese, the people who destroyed Tagoung came from Kandahar, the modern Candahar, and were, therefore, the Khandarin of the Greeks. This was southern Afghan-

istan, which formed a part of the possessions of Antiochus the Great, when Bactria was independent, and could only have been occupied by the Tartars after Bactria came into their possession. The successor of Kadaphes had the Pali name of Ayu, rendered *Azos* in Greek. One of his coins has on the upper side, *Basileos Basileon megalou Azou*—"[coin] of the great *Azos*, king of kings;" with a figure of his Majesty seated on the back of the double-humped Bactrian camel, holding in his extended right hand over the head of the camel, a large cross. As this king reigned ninety or one hundred years before Christ, the cross in his hand could not be a Christian emblem. It occurs on Egyptian monuments of a date more than a thousand years anterior to our era, and has been found also on the slabs dug up at Nineveh. In the hands of this Scythian, it unquestionably denotes victory. His coins prove that he reigned long, and had a widely extended empire. Tagoung was probably destroyed during his reign. Chinese history states that when the Tartars invaded Bactria, they were under the command of a Chinese general, which harmonizes with the Burmese accounts of Chinese being associated with the Tartars. The Tartar dominion in Eastern India was destroyed, in a great measure, by Vikramaditya, king of Oojein, or Malwa, who gained a great victory over them, A. D. 56; and this has ever been regarded so important an event by the Hindus, that their principal era now in use, dates from this epoch. The Burmese have what they call the "Prome era," which was in use for about seven hundred years, dating from A. D. 79. It is highly probable that it refers to the same event. An anachronism of twenty or thirty years, is no uncommon thing in native histories.

One history states that the first city they founded was "Moriya, now called Mweyin;" but another represents it as having been built at a short period before the Christian era. Both unite in making it an important city in the days of Ptolemy, and it is still a considerable place, inhabited principally by Shans, north of Ava, very near the point where on Ptolemy's map is seen *Mareur Emporium*—a most remarkable proof of the accuracy of his information.

Burmah appears to have been known to the Greeks.

"The mountains," says Ctesias, "abound with trees hanging over the numerous streams which flow through them. Once a year during thirty days tears flow plentifully from them, which, falling into the waters beneath, coagulate into amber. These

trees the Hindus call Sipachora. In the country about the sources of this river, there is a flower of a purple colour, which gives a dye, not inferior to the Grecian, and even much brighter. There is also an insect living on these amber-bearing trees, the fruit of which they eat; and, with these insects bruised, they dye stuffs for close vestures, and long gowns of a purple color, superior to the Persian. These mountaineers having collected the amber, and the prepared materials of the purple dye, carry the whole on board of boats, with the dried fruit of the trees, which is good to eat." Dr. Taylor thinks that the country here designated Assam, but there is no region known that answers to all these conditions except the northern portion of Burmah, including the valley of the Kyendwen. There are the amber mines; there grows the ruellia, which produces the blue dye so generally used in Burmah; there is the lac insect, which furnishes the purple dye; and there, to this day, a dried edible fruit is brought from China, called Chinese dates, or Chinese figs.

Burmese histories differ widely among themselves. One author states that after sixteen kings had reigned over Tagoung, the brother of the seventeenth, A. C. 593, went into the forest to hunt a wild boar that had committed extraordinary ravages, and he ultimately chose the life of an ascetic. He had there with him an adopted daughter, who was seen after she reached the age of puberty by the king of Tagoung's son; and the interview resulted in marriage. Dwattaboung[1] was the son of this couple, and he is said to have founded Prome the year after the meeting of the second great Budhist council in Wethale;[2] which it is well known, was held A. C. 443, in Vasali, a city on the Gandak, about twenty miles north of Patna.

Prome,[3] then, according to Burmah history, was founded A. C. 444, by king Dwattaboung. Five remarkable occurrences are said to have preceded its foundation. A violent earthquake, a point of land changed to a lake, the appearance of a new river, a mountain sunk into the earth, and the sea dried up in the country of Prome. Situated as this coast is known to be, on the margin of a line of active volcanoes, stretching up from Sumatra through Barren island to the mud volcanoes of Ramree island, these notices may be the tradition of some violent convulsions of nature, to which Pegu was subjected in ancient times.

After a reign of seventy years, Dwattaboung was succeeded by his son Dwattayan, and Dwattayan was succeeded by his son, who reigned twenty-two years; and he was followed by a son who was a pious and good monarch, and reigned fifty years. In the twentieth year of this king's reign, the third great Budhist council was held in the city of Patalepoke.[4] The time of holding this

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[1] ဒွတ္တဗေါင်း [2] ဝေသလီ [3] သရေခေတ္တရာ [4] ပဋလိပုတ်

council is a well known epoch in Indian history, and occurred A.C. 308. The Burman Patalepoke[1] is identical with the Sanscrit Pataleputra,[2] the Sanscrit compound *r* being usually omitted in such cases in Pali, and the consonant doubled to compensate. This it is well known, was an ancient city near Patna, and identical with the Palibothra, of the Greeks; a city which, in the days of Alexander, the historians say, was "The magnificent Palibothra, the Indian Babylon, superior in wealth and power to the Assyrian; the seat of the monarch, whose authority extended over all the Indian Peninsula, and who could lead into the field six hundred thousand infantry, thirty thousand cavalry, and nine thousand elephants."

Ranman,[3] the grandson of Dwattayan, ascended the throne A.C. 301. After a reign of fifty years, this bad king, as he is represented, died and was succeeded by his son Rekkhan[4] A.C. 251. Rekkhan is said to have been very handsome, to have had many wives, and to have been a remarkable shot with a cross-bow. He reigned thirty one years, and was succeeded by his son Khanloung, A.C. 220; who died after a reign of thirty eight years, Khanloung's son and grand-son followed without anything worthy of note, but his great grand-son, Therereet,[5] who came to the throne A.C. 118, was a very good, and learned man. In his reign religion and the arts particularly flourished, and he had six distinguished teachers, who wrote on history, and mathematics, and taught religion.

Tæpah,[6] the next king, who came to the throne A.C. 114, was originally a poor student for the priesthood. The historian describes the cause of his rise thus: The priest his teacher hearing a cock that he petted constantly crying out, "the person who eats my head will become king," ordered his boy, the young student, to cook it for him. The boy when he cut off the fowl's head let it fall accidentally on the ground, and then thinking it unfit for his teacher, ate it himself, and became king accordingly.

In the seventeenth year of Tæpah's reign it is stated that the doctrines of Gaudama were committed to writing in Ceylon. This event we know both from Ceylonese and Burmese history to have occurred A. C. 93, or 94. This monarch is represented as a good king, and died A. C. 60, when he was succeeded by his son Papeyan,[7] who reigned sixty-six years, and died A. D. 7. It is noted that during his reign there were great religious dissensions in India. His son Ronmokkha[8] succeeded him, a good man, skilled in the Vedas,[9] who died after a reign of fifteen years in A. D. 22. Ranthinkha,[10] the son of the last king,

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[1]ပဋလိပုတ္တ။ [2]ပဋလိပုတြ။ [3]ရန်မန်။ [4]ရက္ခန်။ [5]သိရိရဇ်။
[6]တေပါ။ [7]ပါပိရန်။ [8]ရန်မက္ခ။ [9]ဗေဒင်။ [10]ရသိန်။

succeeded his father, and is described as being very black in face and person, with red eyes, and red eyelashes. He discouraged Budhism, and reigned only three years, dying A. D. 25. Ranthinkha was succeeded by his son Ramunsalingda,[1] an excellent, and religious king, who reigned fifteen years and died A. D. 40. His younger brother Bæringda[2] was his successor, who reigned twelve years. It is stated that he went to Tekkatho,[3] where he became skilled in the knowledge of the Vedas.

Tekkatho is often mentioned in Burman books as a city in Hindustan. In the five hundred and fifty lives of Gaudama, the scene of more than sixty is laid in this place, and hence it becomes an interesting inquiry to know what place is here designated. Its Pali name is Tekkathiela,[4] or Tekkasiela, and we know that *kka* corresponds to the Sanskrit *ksha*, so the Sanskrit name is Tekshiela, which was the famous Taxila of Ptolemy, in the time of Alexander the Great," "the largest and wealthiest city between the Indus and the Hydaspes," and where he rested and recruited his army. It thus appears that in ancient times, there was more intercourse between Burmah and Hindustan than there has been since the country was known to Europeans.

Munsala,[5] son of Bæringda, succeeded to the throne, and after a reign of five years died A. D. 56. His successor, Pungna,[6] reigned only three years. His younger brother Thaka,[7] then came to the throne, but died A. D. 62, and at his death ten vultures are said to have perched on the palace.

His son Thathee[8] who succeeded him, had no regard for Budhism, and is therefore described by the historian as an odious looking, and evil disposed man. At his death A. D. 65, there were great earthquakes around the city, and the earth opened in large fissures, sending out streams of water. His brother Kannu,[9] reigned one year, and then another brother Kantet,[10] reigned three years, and died A. D 69. Binza,[11] his successor, died A. D. 73, and was followed by Thamugdara,[12] in whose reign the era was changed. There appears to have been at this time a reformation in the calendar, for it is stated that before the change of era, "the month did not agree with the year."

The era was changed the year this king died, and was therefore most probably made by his successor, his son Adetya,[13] who reigned three years, and died A. D. 83. He was succeeded by Thupanya, or Nagarasingna,[14] who was a conqueror, the first that appears in this history.

1ရန်မုညွှလိန္ဒ။ 2ဘေရိန္ဒ။ 3တက္ကသိုလ်။ 4တက္ကသီလ။ 5မုညွှလ။ 6ပုဏ္ဏ။ 7သာခ။ 8သာသီ။ 9ကန္ဓု။ 10ကန်တက်။ 11ဘိဇ္ဇ။ 12သမုဒ္ဒရာ။ 13အဒိတျ။ 14သုပညာ၊ နဂရဆိန္ဒ။

Nagarasingna is said to have subdued Aracan,[1] where he met with a colossal golden image of Gaudama, which he was very anxious to convey round the mountain Nagareet,[2] and thence by sea to Prome, but his generals severed it in pieces and modeled from it twenty-eight small ones. This story corresponds in every thing but names and dates with one related in Phayre's history of Aracan. He says: "The idol which the Burmese so much coveted, they at last obtained, for though much injured it was not destroyed, but was carried to Ava A. D. 1784, where it still remains." Upon the death of Nagarasingna the glory of Prome departed and the kingdom was divided into three divisions—Kanyan, or the southern part of Aracan, Pyu and Burmah, and this is the first time that Burmah is mentioned in history, and it is here introduced as the country of a people as distinct from the Pyus or Prome people, as the Pyus are from the Aracanese. Destructive wars appear to have raged at this period, though history furnishes no details. Prome was destroyed A. D. 104, but by whom is not stated; probably by a people from the south, for the next Burmese capital was established much farther north.

Three years after the destruction of Prome, Pugan again figures in the chronicles of history. This city has been generally supposed to refer to lower Pugan, a city on the Irrawaddy, about a hundred miles below Ava. So Crawfurd considered it, and also Col. Burney, in some historical notices of the place. But as all agree in placing the date of its foundation in the early part of the second century, it could not well refer to lower Pugan, which bears the impress of a far more modern origin. This city was founded, or rebuilt A. D. 107, by Thamugdareet,[3] who reigned forty-five years.

We are further informed that Phyugodi, the third king of Pugan, reigned between A. D. 161 and 241, and that he obtained a great victory at a place called Kambode, over an immense Chinese army that invaded his kingdom. Capt. Hannay wrote in 1835: "About a mile to the south of [Tagoung] is a place called Pagan which is now a complete jungle, but covered with the remains of brick buildings as far as the eye can reach. There are also the ruins of several large temples which have now more the appearance of earthen mounds than the remains of the brick buildings, and they are covered with jungle to the top." The people on the spot told Capt. Hannay that the city was much more ancient than the other Pagan. And indeed we heard this upper city spoken of as "old Pagán," when we were at the capital.*

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[1] ကမ်သံ။ [2] နဂရစ်။ [3] သမုန္ဒရစ်။

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* Yule.

Rev. E. Kincaid, who visited the ruins while at Tagoung in 1837, says : "Early this morning, taking two lascars, three Burmans, a musket, and an axe, or Burman sabre, I set off towards the dilapidated walls and crumbling pagodas of ancient Pugan. I tried to get information from some of the villagers relative to these ruins, particularly about inscriptions on stone slabs and on idols ; but they were, or pretended to be, entirely ignorant. I traced one of the walls of Pugan about a mile, and how much farther it extended I am unable to say. The wall is very broad, and in several places from fifteen to twenty feet high, and is entirely overgrown with jungle and forest trees. Reaching the base of what appeared to be a conical hill, I climbed up, and when nearly at the top, discovered it was a pagoda. On the top of this vast pile, I had a fine panoramic view of the country to a great distance. After digging about two cubits, the masonry appeared. The bricks are twenty inches long, made of a fine material, and nearly as hard as stone. We drew out a number of idols, of a different model from any which I had before seen."

A little to the east of Pugan are the ruins of Tagoung. "These cities," continues Mr. Kincaid, "were in ruins eight hundred years ago when Pugan was built, a hundred miles below Ava." The last remark shows that Mr. Kincaid entertained the same views of the modern origin of lower Pugan that have been stated above. And that these remains are not the ruins of the first Pugan, is evident from the sculpture of the idols exhumed from the ruins, for when Col. Burney obtained some similar ones from Tagoung, and sent them to Calcutta, they were recognised as "very nearly of the same character as those found at Sarnath ; and may have been made there or at Gaya for exportation, as is the custom to the present time."

But what is still more conclusive evidence of the age of these ruins is, the inscriptions found carved upon the idols, in a form of the Sanscrit character, which is known not to have been in use until the fifth century of the christian era, the old square Pali character and the modern round Burmese being manifestly derived from that, or one of the third century. The existence, then, of the images entombed in the ruins of upper Pugan and Tagoung proves that they were flourishing cities after the fifth century, while history, tradition, and their present state attest that they have been in ruins nearly a thousand years.

In A. D. 345 the historian notices a terrible hurricane that swept over the country, destroying nineteen towns and villages. But nothing further remarkable is recorded until king Poukpasau comes to the throne, A. D. 613. This king was not of royal descent, and how he ascended to royalty is not noticed ; but he seems to have been a superior man, skilled in the Burmese scriptures and the vedas ; and he changed the era, making the present vulgar era commence A. D. 638 or 639.

Pyeenpya was the successor of Poukpasau. He took the sceptre A. D. 847, and three months subsequently built, says the historian, "the present Pugan;" though some authorities date the founding of this city two years later. Crawfurd states that there are nine temples in Pugan, "ascribed by tradition to this prince; but all of them small and in a ruinous state, without any interesting relics."

Nauratha, or Anoratha, seems to be the next monarch whose name was distinguished. He was the 42d king of Pugan, and reigned, says some writers, between 1017 and 1059, but according to Crawfurd's table he came to the throne A. D. 997. This monarch was a devout Budhist, and the historian says that in his reign Budhism was established, implying that it had before held an uncertain tenure in the country.

It is remarkable that about the same period there was a great revival of Budhism in Tibet. "In the eleventh century," says Csoma de Koros, "a learned man of Bengal, by the endeavours of *Bromston*, and some other zealous and learned Tibetan religious persons, Budhism, that had been nearly abolished in the tenth century, commenced again to revive in Tibet. This celebrated Pandit upon repeated invitations at last visited that snowy country, going first to Guge in Nare, and afterwards to Utsang where he remained till his death in 1052. *Bromston*, his pupil, founded the Rareng monastery still existing." It would seem probable, that these revivals of Budhism in Burmah and Tibet about the same time, owe their origin to a spirit of propagandism emanating from central India. If Hindu Budhists went to Tibet, it is not improbable that they came to Burmah; and with them may have been Hindu architects who superintended the erection of the temples of Pugan as well as the monasteries of Tibet.

Anoratha is said to have built a series of pagodas and temples, in Pugan, on the model of those then existing in Thatung, which appears to have been at that period, to Budhistical Burmah, what Prome was in the same age to Catholic Europe. His priests and teachers he also obtained from Thatung. An inscription, on a stone in Aracan,* says: "In the year 1600 [A. D. 1057] trusting in the Rahans, or saints, having great regard for religion, the king of Pugan, Anorahtacho, brought Rahans and priests well versed in the sacred books from Thatung to Pugan."

A temple in Pugan containing images of Vishnu, Siva, Hanuman and other Hindu deities, is attributed to this monarch.

His zeal for Budhism induced him to assemble a large army to invade China, for the purpose of procuring a sacred relique—one of Gaudama's teeth, which it would appear had been deposited with the Chinese.

Some writers say the two sovereigns had an interview, and that the king of Pugan remained with the emperor three months.

* Journal A. S. B. May 1834.

Finally negociations were entered into which ended in the withdrawal of the army, and the king returned without the tooth, but with the celebrated image presented him by the emperor. During the king's stay in China the emperor, says Burney, "daily supplied him with food dressed in various gold and silver vessels, which on the departure of the king, he is said to have delivered to the emperor's religious teacher, with directions to dress food in them daily, and make offerings of it to Gaudama's tooth. This proceeding induced many succeeding emperors to demand the presentation of the same kind of vessels from the kings of Pugan and Ava, as tokens of their tributary subjection to China."

According to Crawfurd's table, Kyanchach-sa, or Kyan-yeet-that came to the throne A. D. 1056; and he is said to have built the Ananda, one of the principal temples now in use in Pugan.

Aloundtsee ascended the throne, writes one authority, A.D. 1093, but Crawfurd, who denominates him Alaun-chany-su, says A.D. 1081. This king reigned seventy five years, and the earliest notice of Tenasserim occurs in his reign, which is said to have thrown off his yoke, but was subdued again. He is also described as taking possession of Aracan. In Phayre's history of Aracan, this king is mentioned as restoring to the throne the rightful heir who had fled to his court for aid, and not as a conqueror of the country for himself.

His son, Kala-kya-men, "The king dethroned by western foreigners," succeeded to the throne A. D. 1151. Burney gives his name as Narathu, and says, "he was killed by natives of India from Chittagong, about the year 1171." Yule quotes Singalese history, which says;* "the king of Cambodia and *Arramana*" having inflicted many outrages and insults on Singhalese subjects and ambassadors, the king Praa-krama-bahoo, who came to the throne A.D. 1153, sailed with a great armament, landed in *Arramana*, vanquished the enemy, and obtained full satisfaction." Tournour says that *Arramana* "comprises probably the provinces between Aracan and Siam. In the great inscription on marble near Ava, the districts of Pegu, Rangoon, Dalah, Bassein, Youngmya, and Martaban, are said to constitute the kingdom of Ramiya; which is doubtless the Arramana of the Ceylonese." We may still venture a doubt, for the kingdom of Ramiya is kept quite distinct in the Burmese books from Arimaddana,[1] which is still the classic name of Pugan, as may be seen on modern inscriptions.† "Cambodia" is probably Kambauza of Burmah, embracing some of the Shan states between the Irrawaddy and the Salwen.

* Report, page 48.

† See inscription from Ramree, Journal A. S. Bengal, May 1854, page 211.

1 အရိမဒ္ဒနပုရ။

The great temple of Dhamayangyi in the suburbs of Pugan is said by Capt. Yule to have been built by Kalakyamen about A. D. 1152, of which he says: "Here, to my delight, I discovered a perfect flat brick arch over a window. There were two of these in each wing of the temple, and one of them in particular was as perfect in construction, in joints and radiation, as any London builder could turn out. No suggestion of European or Indian aid would help here. At least I doubt if in the 12th century, the flat brick arch was known in Europe."

Narapadisæthu, the son of Kalakyamen, ascended the throne after the death of his brother, and is one of the most famous kings that figure in Burmese history. He came to the throne, according to Crawfurd's table, A.D. 1107, and Burmese inscriptions found in Aracan, and quoted above, states that a mission was sent to Ceylon A.D. 1171, and ten years subsequently, A.D. 1181, in the reign of Narapadisæthu, five men deeply versed in the Budhist scriptures came from Ceylon to Pugan.

Toungoo history states that he came to Toungoo A. D. 1191; and according to Tavoy historians, he founded the first city that was ever built in the province of Tavoy. He built the pagoda on Tavoy Point A. D. 1204, say the Tavoyers; and founded Martaban in the latter part of his reign, as recorded by Talaing historians. He is said to have ruled from the borders of China to the mouths of the Tenasserim, and died in peace, according to Peguan history, A. D. 1269.

Ganda-palen, one of the three great temples kept in repair in Pugan, was built by this monarch, Yule says, "about A. D. 1160."

His son Zeyasinha built Baudhi, the temple in Pugan which Crawfurd has figured in his book.

When not otherwise indicated, I have adopted the dates of the Royal Chronicles, a copy of which I read, procured by Col. Burney at Ava; and according to these, it was shortly after the death of Narapadisæthu that Pugan was destroyed. I now adopt Col. Burney's published translations:

A. D. 1281, "the emperor of China," says Burney, "deputed ten nobles with 1000 horsemen, to demand certain gold and silver vessels, on the ground that king Anorathazo* had presented them. Some historians assert that they came to demand a white elephant.

"The Chinese envoys conducted themselves in a disrespectful manner in the royal presence; when his majesty ordered the whole of the ten nobles and 1000 horsemen to be put to death. One of the ministers, Nanda-peet-zeen, respectfully addressed the king, saying: 'Although the envoys of the emperor of China are ignorant of what is due to a king, and have conducted themselves in a disrespectful manner, yet if it seemeth well to your glorious

* Gold and silver flower; or ornaments are the emblems of tributary subjection among all the Indo-Chinese nations.

majesty, a report of their conduct should be made to the emperor of China. If it pleaseth your majesty to have patience and issue such orders as may promote the interests of the country, such orders should be issued. To put ambassadors to death has not been the custom during the whole line of our kings. It will be proper then for your majesty to forbear.' The king replied: 'They have treated with disrespect such a sovereign as I am; put them to death.' The officers of government, fearing the royal displeasure, put the whole of the mission to death, without a single exception.*

"When the emperor of China received intelligence of the execution of his envoys, he was exceedingly angry, and collecting an army of at least six millions of horse and twenty millions of foot, sent them down to attack Pugan; the king of which, Naratheehapade, as soon as he heard of the coming of this force, placed under the generals Nanda-peetzeen and Yanda-peetzeen 400,000 soldiers, and numerous elephants and horses, with orders to proceed and attack the Chinese army. The two generals marched to the city of Ngayounggyan, and after putting its walls, moat, and fortifications in a proper state of defence, opposed the Chinese army at the foot of Bamau river, killing during three months so many of their army, that not a grass-cutter even for its elephants and horses remained. The emperor of China, however, kept reinforcing his army, and replacing those who were killed, by sending 200,000 men when he heard of the loss of 100,000 men, and 400,000, when he heard of 200,000. Hence the Burman army was at last overpowered with fatigue, and the Chinese crossed the river and destroyed Ngayounggyan.

"As the nats or spirits attached to either nation were fighting together in the air, four of the Pugan nats, namely, Tebathen, guardian of one of the gates of Pugan city, Tsalenwotthaken-young nat, Kanshyeyoung nat, guardian of the long lake or tank, and Tounggyeyen nat, lord of the foot of the mountain, were wounded by arrows. In the new Yazawen, Tebathen nat is styled Thanbethen. On the very day on which the stockade of Ngayounggyan was taken, the nat Tebathen returned to Pugan, and entered the house of the king's teacher, on whom he had always been accustomed to wait. The king's teacher was asleep at the time; but the nat awakened him, and said, 'Ngayounggyan has been destroyed this day. I am wounded by an arrow, and the nats Tsalenwotthaken, Kanshye and Tounggyeyen are also wounded in the same manner.' The priest and king's teacher called one of his disciples, a young probationer, and sent him to the king to report the loss of Ngayounggyan. His majesty inquired how this circumstance was known, when the young probationer declared, that the nat Tebathen, guardian of the Tha-

* There is some kind of tradition at Ava, that the Chinese envoys insisted upon appearing in the royal presence with their boots or shoes on.

rabha gate, had just arrived from Ngayounggyan, and reported the matter to the king's teacher, who had thus learned that that place had been destroyed on that very day.

"The king then summoned a council of his ministers and officers, and addressed them as follows: 'The walls of the city of Pugan are low, and enclose too small a space to permit all the soldiers, elephants and horses to remain comfortably within, and defend them. I propose, therefore, to build a strong wall, extending from the eastward, from the village of Balen, in the upper part of the river, straight down to the southward, taking in the village Yonatha. But it is not possible just now to procure bricks and stones quickly; if we break down some of the temples, and use the bricks, we shall be able to complete this wall most expeditiously.' Accordingly, 1000 large arched temples, 1000 smaller ones, and 4000 square temples were destroyed. During this operation, a sheet of copper, with a royal prediction inscribed on it, was found in one of the temples. The words were—'In the city of Pugan, in the time of the father of twins, the Chinese destroying, will be destroyed.' The king thereupon made inquiries among the royal women, and learnt, that a young concubine had just given birth to twins.

"As his majesty now believed, that even if he built the intended fortification, he would be unable to defend it, he caused 1000 boats with figure-heads and war boats, to be made ready, and embarked in them all his gold and silver and treasures; a thousand cargo boats, also, he loaded with paddy and rice; in a thousand state boats he embarked all his ministers and officers, and in the gilded state boats, his concubines and female attendants. But as the boats could not accommodate all the royal concubines and female attendants, who were very numerous, the king said: "These women and servants are too numerous to be all embarked in the boats, and if we leave them here, the Chinese will seize and take possession of them; tie their hands and feet together, therefore, and throw them into the river. The king's teacher, however, observed: 'In the whole circle of animal existence, the state of man is the most difficult of attainment, and to attain that state during the time of a Budha, is also most difficult. There can be no occasion for your majesty to commit the evil deed of throwing these people into the water. Such an act will be forever talked of even among kings, and will be registered in the records of the empire. Let your majesty therefore grant permission for any person to take such of the royal female attendants as cannot be embarked in the royal boats, and by so doing, your majesty will be said not only to have granted them their lives, but to have afforded them protection.' The king replied, 'Very true,' and set at liberty 300 of the female servants of the interior of the palace, who were taken and carried away by different inhabitants of the city.

"The king then embarked in his guilded accommodation boat, and retired to the Talaing city of Bathein (Bassein.)

"Nanda-peetzeen and Yanda-peetzeen, after the loss of Ngâyounggyan, retreated and built a couple of stockades on the eastward slope of the male mountain, where they again resisted the Chinese. Both the generals holding some fixed quicksilver* in their mouths, leaped 15 and 16 cubits high in the air at a time, and attacked the Chinese; but whilst fighting in this manner, an arrow, which had been discharged by one of the nats of the the two countries, who were contending in the air, struck Nanda-peetzeen, and threw him lifeless to the ground. In consequence of this event, and the Chinese army being very numerous, victory was unattainable, and defeat again ensued. The Chinese pursued vigorously, and the Pugan generals retreated, keeping their force as much together as possible. On arriving at Pugan, and finding that the king and the whole of the population had left that city and had fled to the Talaing country, the army followed them to Bathein.

"The Chinese continued the pursuit until they reached Taroupmau, but their army, owing to the great distance which it had marched, and its great numbers, began to experience a scarcity of provisions, and was induced to turn back from that place.

In the Burmese year 646 (A. D. 1284,) the king Naratheehapade, fled in fear of the Chinese. Hence he is styled *Taroup-pyemen*, the king who fled from Chinese."

"After remaining five months at Bassein, the king hearing that the Chinese had retreated from Pugan, made arrangements for returning thither. On his way up the river it is recorded on one occasion, his cooks having been able to serve him up a dinner of only 150 dishes, instead of the 300, to which he had always sat down every day, he covered his face with his hands and wept, saying, 'I am become a poor man.' Shortly after, on his arrival off Prome, he was poisoned by his own son, the governor of that place." The dates given by different historians are very dissimilar. Crawfurd's table places the destruction of Pugan A.D. 1356; while the history which Col. Burney consulted made it as above, A.D. 1284.

The year 1300 was notable for another invasion of the Chinese, and for the cruel death of Kyozua, the son of Naratheehapade. This prince was betrayed by his queen, and delivered into the hands of his enemies, three noblemen of Myenzain. These men compelled the young prince to enter the priesthood, and assumed the administration of government themselves. On hearing of their assumption, the emperor of China sent a strong force to restore the sceptre to their lawful sovereign. "The rebel nobles," remarks Burney, "applied for advice to a priest, who recom-

* Among the Burmese alchemists, fixed, or as they call it dead, quicksilver, is an object of great desire, owing to the miraculous power which it is said to confer on the possessor.

mended them, apparently as a taunt, to consult tumblers and rope-dancers. Some of that profession were, however, sent for, and they, whilst exhibiting their feats before the three nobles, repeated as customary words of no meaning, a sentence like the following: 'There can be no dispute when no matter for dispute remains.' The nobles seized upon these words, and applying them to their own case, observed: If king Nyozua is killed, the royal line, which the Chinese have come to restore, will be extinct. Accordingly, they cut off the king's head and showed it to the Chinese, who then proposed to retire, if the nobles would send some presents to their emperor. The nobles agreed, but upon condition that the Chinese army should first dig a canal; and the Chinese generals, to shew the immense numbers of their army, dug in one day between sunrise and sunset, a canal 4900 cubits long, 14 broad and 14 deep, which canal near Myenzain is still in existence."*

According to one account, Ava was founded A. D. 1364 by a prince called Thadoo; but the history Col. Burney read says that "during the reign of its first king Maugaung, A. D. 1412, the Shan chief of Theinni, whose father had been defeated and killed that year when marching with a force to attack Ava, invited the Chinese to come and aid him against the Burmese, while they were besieging the city of Theinni. The king of Ava's son, who commanded the army, hearing of the approach of the Chinese, advanced and lay in wait for them in the wood, from which, as soon as the Chinese came up, the Burmese sallied forth and attacked them, destroying nearly the whole of their army. In the following year, during the same king of Ava's reign, and whilst almost the whole of the Burmese troops were absent engaged in a war with the Talaings in Lower Pegu, another Chinese army entered the kingdom of Ava, and actually invested the capital, but the Chinese general, after besieging Ava for a month, found his army so much distressed from want of provisions, that he was induced to send into the king a proposition, to have the dispute between the two nations decided by single combat between two horsemen, one to be selected on either side. The king agreed, and selected as his champion a Talaing prisoner named Thameinparan, the same warrior mentioned in the Talaing history. The combat took place outside of Ava in view of the Chinese army and of the inhabitants of Ava who lined its walls. The Talaing killed the Chinese, and, decapitating him, carried the head to the king. The Chinese army then raised the siege, and retreated into China.

"In the year 1442, during the reign of Bhuren-Narapadi, also called Dupeyoundayaka, king of Ava, the Chinese sent another mission to demand vessels of gold and silver, which they declared

* It is called *Thengdue-myaung*, and communicates with the Zo river, and is used for the irrigation of paddy lands.

Anorathazo, king of Pugan, had presented as tribute. On the king refusing, the Chinese again invaded the kingdom in the year 1443, and now demanded, that Thonganbua, the Shan chief of Mogaung, should be surrendered to them. This person, together with an extensive kingdom belonging to him, had been conquered by the Burmese in 1442, and the Chinese had previously been at war with him for several years. The king of Ava advanced with a strong force above the capital to oppose the Chinese and drove them back to Mowun.

"The Chinese again invaded Ava in the year 1445, and the king again proceeded up the Irrawaddy to oppose them, but before the two armies met some of the Burmese officers persuaded their king that as the Chinese would never desist invading his dominions until Thonganbua was surrendered to them, it would be better to comply with their wishes. The king then returned to Ava with his army, and on the Chinese following and investing the city, he agreed to surrender the chief, who killed himself by poison. The king, however, sent his body to the Chinese, who are said, after embowelling it, and putting a spit through it, and roasting it dry, to have taken it with them to China.

"In the same king of Ava's reign, in the year 1449, the Chinese made an unsuccessful attempt to take possession of Mogaung and Monhyin, which were at that time considered as portions of the Burmese empire, and the king is said to have made a very handsome present in silver, to the then Tsobwah of Mogaung, named Thokyeinbua, and his younger brother Thopoutbua, for defeating the Chinese invading army."

Eight years subsequent to the last date, A.D. 1485, the king of Ava "gave up Toungngoo to a member of his family. After this period Ava was ruled by a succession of foreign princes, chiefly Shans, until A.D. 1554, when it finally came under the then reigning Toungngoo prince," who had become king of Pegu.

The Talaings did not retain their conquests long; and "in the year 1601," says Burney, "Nyaung Mendarah, king of Ava, after rebuilding the city, and reëstablishing the kingdom of Ava, which the Peguers had destroyed, proceeded with a large force against the Tsobuah of Bamo, who had taken advantage of the downfall of the extensive Pegu empire left by Tsheabyu-mayashen, and set himself up as an independent chief. On the approach of the king, the chief fled to Yunan, and the king after taking Bamo, advanced beyond Maingtein, and sent his son, the heir apparent, close to Yunan with a message to the Chinese governor, threatening to attack him if he refused to surrender the fugitive, but the chief of Bamo was killed in an attempt to make his escape; his corpse, however, with his wife and children, were sent to the king. Some Burmese historians state, that the fugitive chief took poison and killed himself, but the account given above is taken from the edition of the Royal Chronicles, revised under the orders of the present king of Ava."

In the year 1658, during the reign of Mengyeyandameit, king of Ava, Younlhi, who had set up as emperor in the southern provinces of China, having been attacked by the Tartars from the north, came down to Momyin and offered to become a subject of the king of Ava. The Tsobuah made a reference to the king, who ordered him to allow Younlhi and his followers to come in, upon condition that they relinquished their arms. This was done and they were forwarded to the capital. Younlhi then came in with upwards of sixty of his nobles, including the governor of Yunan, and six hundred horsemen.

Shortly after Younlhi reached Ava, accounts were received that a large force belonging to him was attacking the Burmese territory near Momeit, and when questioned by the Burmese Younlhi, said that his generals were not aware of his having become a subject of the king of Ava, but that he would write a letter, by showing which the Chinese generals would desist. The king, however, preferred marching a force against them, which was defeated, as also a second force, and the Chinese then came down and attacked the capital. Some of the exterior fortifications were carried, and the invaders penetrated to the southward, set fire to the monasteries and houses and desolated a large tract of country in that direction. They then returned to the assault of the city, but were repulsed with much loss; and a heavy fire being kept up against them from the guns on the walls, which were served by a foreigner named Mi-thari Katan (Mr. Cotton?) and a party of native Christians, a shot killed a man of rank among the Chinese when the whole retreated.

The king then repaired the fortifications, and summoned to his assistance his two brothers the chiefs of Toungngoo and Prome. The Chinese army when united again advanced from Mona, and succeeded, notwithstanding many attempts made by the Burmese to check them, in again investing Ava, which they besieged for several months. The families and property of many of the Burmese troops being outside of the city, were seized by the invaders and maltreated or destroyed; and this circumstance, joined to a great scarcity of provisions, created much sorrow and suffering among the besieged. The troops had neither rice nor money to purchase it, and on applying to the king, he observed that they had received their grants of paddy land for their services, and that he had no rice to give them; at the same time he stationed some of his women at the palace gate with rice for sale.

The commanders of the troops at last complained against the king to his younger brother, the prince of Prome, who, in the month of May 1661, entered the palace, seized the king and his family, and assumed the sovereignty with the title of 'Mengye-gyogoung.' The dethroned king and his family were shortly after sent to the Khyenduen river and drowned, and hence he is also styled in history *Y-gyameng*, or the king thrown into the

water. As soon as Mengyegyogoung took the reins of government, the affairs of the Burmese began to prosper. He succeeded in several successive attacks on the Chinese besieging force in different directions, and at last, as the invaders suffered severely from these attacks and from an epidemic disease, they, one night in the month of November, 1661, evacuated their entrenchments before Ava and fled, leaving most of their baggage and property.

The whole of Younlhi's followers were subsequently put to death, and in the month of December, 1661, the Tartars marched down a force of twenty thousand men, which took post at Aungpenglay and sent a mission to the king of Ava, demanding Younlhi, and threatening, on refusal, to attack Ava. The king summoned a council of his officers, and gave it as his opinion, that the two precedents which they had in the surrender of Thonganbua, and the governor of Bamo, would justify his now delivering Younlhi to the Tartars. One of the Burmese officers expressed his entire concurrence in his Majesty's opinion; and Younlhi with his sons and grandson were accordingly, on the 15th of January, 1662, forwarded to the Tartar general, and the Tartar camp broke up on the 22nd of January and returned to China. The mutual surrender of fugitives of every description is now an established principle in the relations between the two kingdoms, and the Chinese are said to enclose carefully in a large cage and forward to Ava, any Burmese fugitives required by the king of Burmah."

In 1740 Pegu achieved its independence, after having been subject to Burmah thirty-seven years. Disasters now attended the Burman arms wherever they spread, while the victorious army, elated with successes, marched on to the capital, and twelve years from the date of their liberation, the Peguans took the king of Ava prisoner to their capital, where he was cruelly put to death.

The triumph of the Talaings was, however, of but short duration. A new era was dawning. While the whole Burman nation, dispirited by defeat, were looking with gloom and fear down the future, there arose in an obscure northern chieftain, a star destined to illumine for ages the military annals of Burmah. This chieftain summoning to his standard a bold and trusty band, carried victory wherever he went. In A. D. 1753, he liberated Ava, and four years after he reduced Pegu to a Burman province. Unparalleled successes attended his career, and quelling all rebellions in the northern provinces, Bassein, and Pegu, he turned his arms to the south, conquered Tavoy, and Mergui, and led his triumphant forces into the heart of Siam. But when on the eve of conquest there, he was prostrated by disease, and compelled to abandon his purpose. The disappointed monarch made all haste to reach his own capital, but in vain; he died in Martaban A. D. 1750, in the fifty-first year of his age.

It was from this monarch that the English obtained their first veritable possessions in the Burman Empire, which were obtained by treaty A D. 1757. Alompra then ceded to the East India Company the island of Negrais in perpetuity, together with a strip of territory opposite the old town of Bassein, for the purpose of establishing a factory. In compensation for the ground, the Company engaged to pay an annual tribute, consisting of ordnance, and military stores; a particular clause specifying that aid should be given against the king of Tavoy. But scarcely had two years of amity passed by, when the whole settlement was treacherously murdered by the Burmans.

"In 1760, Capt. Alves was sent with letters and presents from Holwell, Governor of Fort William, and Pigot, Governor of Madras, to demand satisfaction for the massacre, and liberty for the prisoners. Alompra had died on his Siamese expedition a few months before Captain Alves' arrival at Ava. He found the city in rebellion, and the new king besieging it. He was plundered and otherwise shamelessly treated. The prisoners were released, but the idea of satisfaction was scouted, and Ensign Lister's treaty was ignored.

The factory at Bassein was never re-established, but one appears to have been kept up at Rangoon at least till 1782.*

Alompra was succeeded by his son Shembuan, who, pursuing the policy of his father, immediately invaded Siam, and took the capital, but scarcely had the sword been sheathed when war broke out anew in the north. The Chinese having become exasperated by the real, or feigned ill usage of some of their travelling traders, made a sudden descent upon Burmah with a force of sixty thousand strong. King Shembuan hearing of the invasion, immediately dispatched an army of twenty thousand infantry, two thousand cavalry, and two hundred war elephants, under the command of the North Gate Governor. This general marched his men to the immediate relief of Kaungtoun, a city of note north of Ava, which had been invested by the Chinese troops. On reaching the besieged town, the Burmese made a spirited attack upon the aggressors, while the citizens hearing the clash of arms, made a sortie from the town, and succeeded in killing the Chinese general, and driving his army out of the country.

The Chinese did not return until January 1767. At this period the war was renewed with great vigor on both sides. The Chinese commander-in-chief, general Yintoutayeng, marched into the field twenty five thousand horse, and two hundred and fifty thousand foot; while the Burmese commander-in-chief, the Wungee Mahatsithu, with the general Letwewengmahu, led on twenty five thousand infantry, two thousand cavalry, two hundred war elephants, and a water-force of three hundred boats filled with guns and jingalls.

* Yule.

The first assault of the enemy was again upon Kaungtown, which was made with scaling ladders, axes, choppers, hooks, and ropes. But Kaungtoun received the enemy with a warm fire of cannon and musketry, with heavy timbers let fall from the walls, and with showers of boiling dammer, and molten lead. The Chinese were driven back with great slaughter, "declaring the Burmese were not men, but nats." They, however, fortified themselves around the town at about seventy yards distance.

During this siege the adroitness and valour of the Burmese were particularly conspicuous. The Burman general, after the assault, desiring a consultation with the governor of the city, laid the matter before his officers, when three bold warriors volunteered with swift boats to pass through the enemy's forces, and arrange a plan of operations with the governor. The feat was performed, a supply of ammunition, with presents of robes and money, was thrown into the town, and after arranging with the besieged a plan of attack, the mission again broke through the enemy's ranks, and reached their own army in safety.

The Burmese generals afterwards repossessed themselves of the eight Shan towns upon the border, which had previously thrown off their allegiance to Burmah, and returned to the capital with their troops, in May 1767.

In Novem'ber of the same year the country was invaded by a third army from China, consisting of six hundred thousand infantry, and sixty-one thousand cavalry, commanded by the Chinese emperor's own son-in-law, Myengkounge, and the emperor's brother Zsutaloye.

These generals having sent an army of one hundred thousand men against Bamo, pressed on and took immediate possession of Theinni, which the inhabitants, terrified at their approach, had evacuated.

General Zsutaloye then garrisoned the town, and at a short distance erected a strong fortification, and planted his army of twenty thousand cavalry, and two hundred thousand infantry. The imperial army, under the emperor's son-in law, marched immediately into the interior, and was rapidly advancing when intelli ence reached the king. All was consternation at the capital, but the former distinguished commander, Mahatsithu, was summoned, and dispatched with a force of thirty thousand infantry, three thousand cavalry, and thirty war elephants, to impede their progress.

A battle-call now resounded over the empire, and in a few days two more armies were levied, one consisting of two hundred war elephants, two thousand horse, and twenty thousand men, with orders to march round and cut off all communication with Theinni. The other army of two hundred elephants, two thousand cavalry, and one thousand men, under the former general of the north gate, was charged to attack the rear of another force advancing by the Moneit road.

In this campaign the Burmese general Mahatsithu being met by an overwhelming force, was unable to withstand them, and was at first signally defeated. Three regiments were taken prisoners, and the remainder driven back with great slaughter, until within three days journey of the capital.

The Wungee Mahathihathura in command of the army sent round to intercept supplies, was more successful. Learning with what force the Chinese were advancing, he with a valorous officer, Zeinggamengaung, turned open their front, and threw up, with great celerity, a breastwork of large bamboos. The Chinese rushed on with a furious attack, but failed, and at dawn the Burmese sallied out and attacked the assailants so valiantly that the enemy retired. The Burmese, inspired with fresh zeal, pursued, cutting them down until they took shelter in Theinni. General Letwemengmbu joining him at that crisis from the Moneit route, the two united their forces, and stormed the town with three divisions of ten thousand men each ; and after a severe engagement, the place, with all the Chinese magazines, fell into the hands of the Burmans. The Chinese general, Myengkoung, being defeated at every point, fled with such of his troops as were able to escape ; and the army beseiging Bamo hearing of these disasters, also retreated into China, and thus ended the third campaign in March 1768.

After this campaign king Shembuan sent a communication to the emperor of China, saying, " All sentient beings desire rest," which seems to have delayed hostilities for the space of a year ; but in 1769, another armament of fifty thousand cavalry, and five hundred thousand foot, were fitted out against his majesty's dominions. Shembuan again collected his troops, but it appears from the chronicles that this army was much inferior in number to that of the Chinese. . Yet they fought bravely, and skilfully, at one time receiving the Chinese cavalry, which charged upon them impetuously, at another time breaking the enemy's ranks with their war elephants, or carrying their fortifications by superior generalship. On one occasion the Burmese general, in order to make the enemy suppose he was being strongly reinforced, caused large parties of men, elephants and horses, to pass over the Irrawady every day, and at night brought them all secretly back again.

The object of the Chinese in all their campaigns was evidently to draw the Burmese as speedily as possible to battle, and avoid penetrating far into the country. But the Burmese commanders seem to have been superior tactitians, and to have carried on the war by continually harassing the enemy. Though there were several pitched battles, yet much time was consumed in skirmishing among the mountains, every glen and pass of which was familiar to the Burman peasantry. At length the Burmese succeeded in closing around the main army of the Chinese, and by

one effective engagement carried their fortifications at Shuenggaung-geng, and forced the commander to capitulate. A treaty was negotiated, and the Chinese after surrendering their arms, were escorted by the Burman troops "at a jingall's shot," to the boundaries of their own country.

The king, however, was exceedingly displeased with his officers for granting terms to the Chinese. Their orders had been to destroy them wholly, but they, with better knowledge of human nature, had dared to disobey. Their families were consequently disgraced; and though the wife of the commander-in-chief was sister to the principal queen, yet she, with the other officers' wives, was made to stand in the public streets for three days, with the Chinese generals' presents upon her head.

In 1769, the French East India Company sent an envoy to the court of Alompra's son Senphyoo-yen, with the view of re-establishing their trade. They obtained from the king the grant of a factory and other privileges, but these concessions were never acted on.*

While the king was engaged with China, the Siamese arose and shook off the Burman yoke. The Talaings also revolted, and established themselves at Martaban, but they were finally subdued, and soon after king Shembuan died, A. D. 1776.

Shenbuan was succeeded by his son Ghengenga, a most worthless prince, who consulted only his pleasures, and finally became so unpopular that a conspiracy was organized in his own court which resulted in his fall, after which Mornien, or Moung-Maing, was placed on the throne. This unfortunate prince had, from his father's death, been immured in a monastery, and was considered a kind of "idiot youth," but he was now brought out and crowned king only to forward the designs of his enemies; and after an inglorious reign of eleven days, he was drowned in the Irrawaddy, by order of his uncle Mendaragyee, the fourth son of Alompra, who seized the throne, and commenced his reign in 1781.

Mendaragyee, soon after he put his nephew to death, made war upon Aracan, and in 1787 conquered the kingdom, and annexed it to his dominions. He next perpetuated his name by founding a new capital at Amarapoora, which was in its glory when an embassy of three hundred men arrived from China. Four years previous this monarch had attempted to hold communication with that empire, but his envoys had been seized, and sent into the northern Tartar country. He, however, courteously received the mission, and on the day of its presentation all the principal streets and walks were decorated with silken pennons of orange and scarlet, waving over beds of fragrance; while the royal avenue leading to the palace was adorned on each

* Yule.

side with flowers and fanciful artificial scenery. All the officers of the court appeared in the court-hall in their uniforms and jewels, with the white elephant, and others gorgeously caparisoned, drawn up with the troops in front.

Then came the procession of officers and musketeers, preceding the king's bearer mounted on an elephant with scarlet housings, bearing a superb betel-cup containing the emperor's letter. The letter-bearer was followed by a sedan chair with eight golden images of Byamah, and two other sedan chairs with presents; then ten war-steeds designed for presents, and then the principal ambassador upon an elephant, four others on horseback, and the escorts of the mission. The procession wound along under evergreen arches, and halted near the court-hall. The princes of the blood and the other great officers, with the heir-apparent in full state, then entered the palace, after which the royal letter was deposited before the throne, and the chief envoys, after prostrating all the way from the court-hall to the palace, were conducted up the eastern steps to the seat appointed to foreign ambassadors. Massive folding doors were then flung open, and the emperor of the golden palace, "wearing the *Mahamuni* crown," ascended the throne, placing beside him his principal queen arrayed in the imperial jewels, followed by all the beauties of the royal harem. Immediately music streamed forth from the imperial orchestra; incense floated round the audience hall; censers waved from the hands of attending Brahmins; while sacred flowers, and consecrated water flowed into a golden cup beaded with the nine precious gems.

The king's letter-bearer then read kneeling a list of the royal presents sent from China, and his reporter, also kneeling, read from a golden book a translation of the emperor of China's letters. Regal gifts of silver plate, with rubies, horses, scarlet, cottons, handkerchiefs, prints, and lacquered boxes, were then presented to the chief envoys, after which the silver gong was struck, the state drum beat, and his majesty, with the royal family, retired.

In 1790, the chronicles of Ava state, that another deputation arrived from China, bringing the king two Chinese princesses. Burney thought they were not princesses, but women of low rank, as their feet were of natural size. If it was so, the ruse took admirably, for the king not only honored them with queenly titles, suites, and provinces, but on one occasion placed them on the throne beside himself.

In 1792, his majesty dispatched another mission to China, to convey an honorary title to the emperor, and another to the governor of Yunan. These titles were in Pali, graven on plates of gold, set with rubies. The envoys of this mission consisted of four of the chief ministers of the empire, and it is supposed that it was at this time that the governor of Bamo brought back

the splendid seal deposited at Ava, which weighed ten pounds of pure gold.

"In 1794," says Yule, "the Burmese began to make insolent and threatening demonstrations on the Chittagong frontier; and it was known that the French were directing their attention to Burmah as a good fulcrum for attack or intrigue against British India. For these and other reasons, the Governor General (Sir J. Shore) deputed an embassy to Ava under Captain Michael Symes, of His Majesty's 74th Regiment.

It cannot be said that this mission was treated with much respect, or advanced the estimation of the British power among the Burmans. Captain Symes was treated as the envoy of an inferior power, and was undoubtedly himself imposed on by Burmese pretensions. The whole colouring of his narrative tends to leave a very exaggerated impression of the civilization and magnificence of the Burmese empire.

In 1796, in accordance with the permission conceded in the document given to Captain Symes, Captain Hiram Cox was sent to act as resident at Rangoon on the part of the Government of India. He had charge of some articles which the king had commissioned through Symes. But he was not to proceed to court, unless summoned.

He was summoned, and reached Amarapoora in January 1797. There, or in its neighbourhood, he remained during nine weary months, bearing with singular patience every kind of slight, indignity, and imposition, the history of which it is quite painful to read. In October he returned to Rangoon, and in February he was recalled by the Government, who (misled perhaps by the impression that Symes had given) intimated their opinion that the conduct of the court must have indicated personal dissatisfaction with Captain Cox. And the king and his ministers were addressed, notifying Cox's recall, and offering to appoint another gentleman in whom the Vice-president had the greatest confidence, should His Majesty desire it.

Captain Cox's private journal was published in 1821, some years after his death.

Several insolent communications were in the following years received from the Viceroy of Rangoon, and the Governor of Aracan, and in 1802, Captain, now Colonel Symes, was sent again by Lord Wellesley. His mission was attended by an escort of 100 sepoys, and equipped in a style characteristic of the Governor General. He was to seek a treaty of alliance, the cessation of extortionate exactions on trade, the establishment of a resident at court and of a consul at Rangoon, and to claim Negrais or compensating commercial advantages.

The mission was a total failure. The envoy was treated for three months with the most mortifying neglect and deliberate

insult, and at last quitted without an audience of leave. It is not to be wondered at, that the Colonel published no narrative of his second mission.

In May 1803. the apprehension of French intrigue in Burmah again induced the Government to send Lieut. Canning as agent to Rangoon. But in consequence of the insolent violence of the Ye-woon, who was in charge of the Government there, and insisted on opening all letters, Lieut. Canning judged it best to return in November.

In 1804, an outrage was perpetrated on a British ship from Penang, which put into Bassein for wood and water. No notice was taken of this.

1809. Captain Canning was despatched as agent to Rangoon, with a special view of explaining to the Burmese the nature of our blockade-system, which was then enforced on the French isles to protect British interests, and to watch the progress of the French in Burmah.

He proceeded to Amerapoora at the king's desire. He met with much better treatment than either of the two last missions to the court, and the explanation, which was the main object of his mission, was effected. But he did not leave without receiving from the woongyees two most impertinent letters to the Governor General.

1811. This year commenced those disturbed relations on the Aracan frontier, which eventually led to the war of 1824. A native of Aracan called King Berring, or Khyen-bran, embodied a number of followers within our territory, and invaded Aracan. In September Capt. Canning was sent to give explanations on this matter, and to complain of the conduct of the governor of Rangoon towards British trade. Whilst he was still at Rangoon a gross violation of our territory was committed by the governor of Aracan. Additional instructions were sent to Canning to complain of this and to demand the withdrawal of the Burmese troops from the frontier. In consequence of a repetition of the offence he was recalled, whilst repeated orders came from Amerapoora to send him to court, by force if necessary. He despatched the presents, but returned to Bengal in August.

In the latter part of his reign, Mendaragyee was engaged in a war with Siam that was continued seven years, in which the Burmese were partially victorious, and after a prosperous reign of thirty-eight years he died in 1819, leaving the throne to his grandson.

In May 1824, the first English war with Burmah commenced, and Rangoon was taken early in the month. Possession was obtained of Syrian in August, of Tavoy in September, and of Mergui in October. On the 2d of April 1825, Donabew was taken, and on

the 25th Prome was occupied by the British troops. The battle of Melloon was fought in December, and in February 1826, Pugan was captured, and a treaty of peace was signed at Yandabo the same month in which Aracan and the Tenasserim Provinces were ceded to England.

In 1837, the king's brother, the prince of Tharawaddee, usurped the throne, who became insane in 1845, died in 1846, and was succeeded by his son, whom Dr. Dawson characterizes as "destitute of genius, deficient in intellect, deficient of general knowledge, passionately fond of the most low and grovelling pursuits, as cock fighting, ram-baiting and sports of that kind: he allowed the affairs of the country to be controlled by persons who were singularly bereft of all right principles. Hence the late war between him and the Hon. East India Company, and of his ultimate overthrow from all power by his own people."

War was declared 12th February 1852; Martaban was taken 5th April; Rangoon with the great pagoda stormed and captured the 14th of the same month; Bassein 19th May; Prome 11th October; Pegu 21st November, and Toungoo was occupied 22nd February 1853. On the 20th of June peace was declared, but before this event the king of Burmah had been compelled to resign the throne to the present monarch, or the war would have probably been prolonged.

Dr. Dawson describes "his present majesty as a man about 45 years of age, about five feet seven inches high, possessing a well developed physical frame, a most pleasant countenance, keen dark eyes, a noble looking brow, courteous and insinuating manners, with all the ease, grace and dignity of a person who had been born expressly to reign. Naturally fond of books, and of obtaining all sorts of information, he seems like an enthusiastic student. Endowed with a very fair intellect, which has been improved and strengthened by study, his reasoning powers are of no mean order. He possesses an intuitive knowledge of character and a discernment of the capacities of the men who are around him. No Burmese sovereign was ever more popular with all classes of strangers and foreigners at the capital. He gives his whole time and attention to public affairs. Listening to all of whatever creed, or country, who have business of any kind to transact with his government, or favors to solicit at his hands, he deals justly and even munificently to many, who have no claim whatever to share in his liberality. For those who honestly speak the truth he appears to entertain a respect, while flatterers, fanatics and mischief makers, are treated as they deserve, with cold and silent reserve. Receiving intelligence as he does, from a variety of sources, his majesty is able to compare statements, and in this mode is tolerably correct in his conclusions on any subject upon which he may happen to feel an interest.

BURMESE TRIBES.

Mranma, or Myamma, pronounced *Da-ma*, first appears in history at the close of the first century, as the name of that portion of the Burmese race which occupied the country above Prome. No satisfactory derivation of the word can be proposed, but may it not be of Tibetan origin? *Mhon* is the name given in Tibet to "all the hill people between the plains of India and Tibet." *Maryul* is "the low country, Ladak," and *Mnah-ris*, or *Nari*, "the name of the north western part of Tibet."* *Mien* is the Chinese name of Burmah according to Col. Burney, and Lan Meen according to Buchannan.†

Of all the small tribes in Burmah, not one indicates the slightest affinity with the Talaings, but there are several, nearly or more remotely allied to the Burmese. Those unquestionably of common origin will be noticed here, but the others will be reserved for another place.

ARACANESE.

The Aracanese are a branch of the Burmese race that separated from the main stock at a very early period. They call themselves *Rakaing*,[1] a word of uncertain derivation. Their history has been written by Major Phayre.

MUGS.

"The term Mug is applied by the people of India to the Aracanese. It is exclusively a foreign epithet, unknown to the Aracanese themselves. It probably takes its origin from the tradition of a tribe of Brahmans termed *Magas*, said to have emigrated eastward from Bengal."‡

KANYAN.[2]

The royal records of the first century of the Christian era, represent the southern part of Aracan as colonised by a section of the Burmese race under the name of Kanyan.

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* See Cooma De Koros' Tibetan Dictionary.

† Yule, page 207.

‡ Phayre. Magas looks very much like Magos, the priest of the Medes.

[1] ရိုင်း [2] ကန်းယံ

TOUNGOO.

Zeyapura, says Crawfurd, is "Old Sagaing, and Yule leaves Zeyawadee and Zeyawatana undefined; but Zeyawatana,[1] of which the two other names are probably synonymes, Toungoo history describes as an independent kingdom, with Burmah on the north, the Shan state of Zimmay on the east, Pegu on the south, and the mountains which separate it from Prome on the west—the modern kingdom of Toungoo.

The first historical monarch whose name appears on the palm-leaf records of Toungoo, is Asoka, or Dammasoka; the reign of whose grandfather, Sandrocotta, affords the first reliable date in the history of Hindustan. When Alexander went to India, the country appears to have been divided into several small kingdoms, among whom we meet in Grecian history with "the Malli;" a name familiar to the Burmese, for it was in the country of the chiefs of this people that Guadama died, and they are represented in the Burmese books as presiding over his funeral rites. Seleucus Nicator, the successor of Alexander in all his empire east of the Euphrates, crossed the Indus with a view to annex all India to his possessions; but he then found the whole country under the government of Sandrocotta, with whom, instead of going to battle, he made a treaty renouncing all claim to Alexander's conquests in India for the consideration of a few elephants. This was, according to the Greek historians, about three hundred and twenty-five years before our era. Burmese history represents Asoka, the grandson of this monarch, as reigning over the whole civilized world about the same period; and we know from Pali inscriptions engraven on the rocks of the Punjaub, in Guzerat, Cuttack, and Berar, that he lived and reigned over all India not many years afterwards; so the discrepancy of a few years between the Greek and Burmese dates, only establishes the general accuracy of both. We know from his inscriptions near Peshawur, how far his dominions extended west; but it was not till we entered Toungoo history, that we became aware of their extension to the east. In the early years of his reign he professed the Brahminical faith; but he became a convert to Budhism, and exerted himself for its propagation. Two small pagodas standing together about eight miles east of the city of Toungoo, and two others about twenty miles to the westward, are said to be founded over relics of Gaudama, which he furnished the chiefs of Toungoo, who were subject to his government.

The histories contain no more reliable dates, till the reign of Narapatichesu, who reigned at Pugan in the latter part of the twelfth

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[1] ဇေယဝတီ

and the beginning of the thirteenth century. I have met with him, with a little variety of dates, in Tavoy, Talaing, and Burmese histories, each compiled from different sources, and now he appears in the records of Toungoo. All these histories represent him as a very religious monarch, who did much to establish Budhism on a permanent basis in Burmah, and the neighbouring regions.

In A. D. 1191, Narapatichesu left Pugan in boats, and after going out to sea below Rangoon, he turned up the Sitang, and guided by the astrologers, he reached the pagodas in Toungoo that had been built in the days of Asoka. He found them in ruins and overgrown with trees, which goes to prove that Budhism was unknown or disregarded by the inhabitants of the country. He repaired the pagodas, cleared the forest around, and at his departure, left one of his ministers in charge of the province as governor.

His son succeeded in the government, and removed his residence to the banks of a tributary of the Sitang, where he founded a large town called Kyakhatwadeyan,[1] few miles north of the present city of Toungoo. Here, history states, people gathered together from all directions, and the place was very prosperous till Wariru, king of Martaban, made war on the country, who destroyed the city A. D. 1256, and carried the governor captive. He placed him in a village between Shwaygyeen and Sitang, where he had two sons. When at the point of death, he told his sons that their country was the land of Toungoo, and charged them to go thither, if they wished to be prosperous. Accordingly after his death they ascended the river, and followed up one of its western tributaries, Kaboung creek, till they reached the spur of a mountain, where they founded a town which they called Toungoo, *i. e.* "spur of a mountain," from *toung*, mountain, and *gnoo*, a spur or projection.

This occurred A. D. 1278, and about the same time a man called Karen-ba, or Karen father, founded a town on the east side of the Sitang river, which he called "The Karen city." He pas undoubtedly a Karen, but the fact is not distinctly stated in history; and some Burmese say the name was an epithet. When the two brothers heard of this new city, they went over and made a treaty of friendship with Karen-ba, by which the three agreed to found a city together. They ultimately travelled over the whole country in search of a suitable site, and finally united on Toungoo, where they built "great Toungoo," A. D. 1283. Each ruled in turn, the Karen dying last, who lived till A. D. 1342.

The historian proceeds to give the details of the reigns of

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[1] ကျားခတိဝါဒရုံ။

twenty-nine kings, who reigned successively, many of whom were murdered as kings were in Europe about the same period. The kingdom flourished under Theingpaka, the third king who conquered five Shan provinces, and exchanged ambassadors with the Talaings, the Burmese and the Cambodians. The country was rarely at peace, and the city was once taken by the Shans, but they held possession but a very brief period. In A. D. 1428 the king of Toungoo, allied with the king of Pegu, made war on the Burmese with two hundred elephants, one thousand horsemen, and twenty thousand foot soldiers, besides the Talaing forces. They took Prome, at that time the capital of the Burman empire, and carried off much booty.

The twenty-ninth king, Zeyathura, came to the throne, A. D. 1485, and not liking the situation of his capital, removed to the banks of the Sitang, at the mouth of Kaboung creek, where he resided a short time; but determined finally to build a city on the sight of the present Toungoo, which he named Ketumati, *i. e.* "possessed of the royal standard." This Pali name is still used in official documents, but Toungoo, the name of the first city, was transferred to it in common use, though being situated in a plain far from the mountains, it is inappropriate. One hundred and seven thousand five hundred and twenty-four persons were said to be employed in building the city, which was completed A. D. 1510.

This king had several brahmins at his court, and they exercised considerable influence over the religion of the nation. I found a ruined building in the north-west corner of the city, which contained decayed wooden images of Vishnoo, and some other Hindoo gods, to which the people were formerly in the habit of making offerings; and in the account of the ceremonies at the completion of the city, it is said that the image of Ganesa, the Hindoo god of wisdom, was placed on a stone slab on the south side of the city. In the centre an image of Gaudama was placed with the Pitaka, or Budhist bible, before him. The streets were strewn with white sand, with lattice work erected on each side on which were hung cocoanuts, plantains, and vessels of drinking water. The people were assembled without the walls, and a procession formed, with the king at the head, who entered the city at the principal gate on the east side, with music playing, and all the paraphernalia of royalty. When he reached the outer gate of the palace, the brahminical priest and the chief architect exclaimed; "Let the ruler of this land and water, the excellent king of the law, possessing great glory, ascend into the golden palace which he has built; in order that he may observe the ten laws of kings, that he may give, during the whole of his life, prosperity to religion and to the inhabitants of the country." He then walked in on red woolen cloths, covered with white cotton, which had been spread on the ground; and when at the foot of

the palace steps he made offerings to Sudra, the Brahmahs, and all the devas; after which the Brahmins approached him, poured on him the water of consecration, and he entered the palace.

Narapati, king of Ava, soon after the completion of the city made war on Toungoo. The king of Toungoo defended himself with one hundred and twenty elephants, six thousand horse, and fifty thousand foot men, and completely routed the Burmese army. In 1526, it is stated, that Narapati was defeated by the Shans and Ava destroyed. The king of Ava retained Penya, with the neighbouring districts, and became a tributary to the Shans. Zeyathura, or Maha-thie-rize-yathura,[1] the king of Toungoo, died A. D. 1531.

He was succeeded by his son Mentarashwetee,[2] who conquered Pegu, and removed his seat of government to that city, after which he gave Toungoo to the Shan prince Menyaythingathu.[3] After the death of this prince, his son, Hsenphushen,[4] ruled in Toungoo, but in 1552, whether by conquest or inheritance, is not stated, he removed to Pegu. To his younger brother, Thiehathu,[5] who took the name of Mengoung,[6] he gave the government of Toungoo. The son of this prince, Menyaykyauten,[7] assumed the title of Maha-thieha-thura-dhamma-raza,[8] and built the golden palace in Toungoo A. D. 1585, the ruins of which are still seen.

He was succeeded by his elder brother Nat-shen-noung-thie-rie-maha-raza. Soon after his accession he was involved in a war with Ava, when being overcome, his mother and other relatives were carried away as hostages, and placed under surveillance in the city of Penya, A. D. 1607. Five years afterwards reports were brought to Toungoo that the Syriam-kula-zenka, Philip de Brito, with the son of the king of Aracan, were approaching the city; and the news was immediately sent to Ava, but before the troops sent to aid in the defence of the city could arrive, the place was taken, and the king with his court carried prisoners to Syriam, A. D. 1612. The same year the king of Ava, Maha-dhamma-raza, proceeded to Syriam, took the place, executed De Brito, and carried away all his relatives and followers captive.

In 1637, Toungoo ceased to have the shadow of independence, and all the officers of government received their appointments from Ava, to which place the taxes were ordered to be forwarded.

မဟာသီရိဇေယျသူရ။

[2]မင်းတရားအွတီး၊ [3]မင်းရဲသိဒ်သူ။ [4]ဆင်ဖြူရှင်၊ [5]သီဟသူ။
[6]မင်းခေါင်၊ [7]မင်းရဲကျော်သင်။ [8]မဟာသီဟသူရမဓိရာဇာ။

TAVOYERS.

The Tavoyers consider themselves as the descendants of an Aracanese colony which settled in the country at a period anterior to their historical records. This tradition is confirmed by their dialect, which has in it many provincialisms peculiar to Aracan. Most ancient maps have *Daŏnăe* on them near the mouth of Tavoy river, and Dr. Butler in the index to his ancient atlas gives "Daŏnăe in Siam, latitude 13°, and longitude 115°, from the Feno islands, which is about 97° from Greenwich. This can be no other than Tavoy, which the natives call *Daway*,[1] from *Da* a sword, and *way* to buy, originating in a myth of a miraculous sword having been bought in the place. Three hundred years ago Cæsar Frederich put into "the gulph of Tavoy under the king of Pegu," where in the first village to which he came he found "a great store of vituals."

Tavoy history opens with the visit of Nara-pati-seethu, king of Pugan, who appears to have established Budhism in the province A. D. 1204, when he built the pagoda on Tavoy Point, the oldest structure in the country. He founded a city about a dozen miles above the mouth of the river, but his successor in the government, removed his capital farther north; and the remains of nine walled towns still remain, that have been in turn royal cities within six hundred years. The kingdom, however, held an uncertain independence, being occasionally tributary to Siam, then to Pegu, and finally to Burmah. Symes says Tavoy was recognized as an independent principality by the English in 1753; and in 1757 in the treaty with Alompra when he ceded the island of Negrais, "a particular clause specified that aid should be given to the Burmans against the king of Tavoy."* The present city of Tavoy was built in 1751.

YAUS.[2]

The Yaurs, or Yaus, or Yos, or Jos, or Quois, are a small Burmese tribe dwelling in the valley of the Yau river, which falls into the Irrawaddy on the west side a few miles south of Pugan. Yule says "the Yaus are great traders, and are the chief pedlars and carriers of northern Burmah."

ZEBEINGS.

The Zebeings, or Yebains, are described to me by Burmese as "Burman-Karens—a very dirty people that eat, drink, and cook out of the same vessel." They inhabit the valley of the Sitang, above the city of Toungoo, and are employed in raising the silk worm, making silk, and weaving it into cloth. Zebeing silks are a peculiar fabric, well known in the bazaars.

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[1] ဓဝေ။ [2] ယော။

* Symes, page 41.

PYUS.[1]

The Pyus are represented, in ancient Burmese history, as that portion of the Burmese family which inhabited Prome, and as distinct from the *Mrnma*, or Burmese proper.

KADOS.

A little above the ancient city of Yagoung, at Thigyain on the west side of the Irrawaddy, are seen the remains of old stone forts, said to have been "the capital of the Kados, a tribe now scattered over the interior of the Monyeen district and that of Pyenzala, west of the river. Colonel Hannay speaks of the Kadòs as being the most interesting of the northern tribes, like the Yós, one of the old Burmese races."*

DANU.

A Budhist priest from Mwe-yen told me that the Danus,[2] or as they have been called, D'hanoe, D'hanu, and D'hanao, were numerous in his neighbourhood. He described them as an uncultivated people like the Karens, but speaking the Burmese language in a rude nasal, and gutteral dialect. The name is Pali, and appears to have been given them as a term of opprobium by the Burmese. According to Burmese mythology, there were three Rakshas,[3] the mothers of three tribes of demons, of whom Danu was one. Wilson says the Danus of the Hindoos correspond to the Titans of Greek mythology.

SHANS.

The *Tai*, of which the Shans form a part, encircle Burmah on the east and north from the gulph of Siam to Assam and the Brahmapootra. The Siamese on the extreme south east, though at present the most powerful member of the family, are the youngest. They trace their origin to an off-shoot from the Laus, whom they formerly denominated "great Tai"; while they called themselves "Little Tai." They were originally tributary to Cambodia, and have only become an independent nation within the last five or six centuries. According to Bishop Pallegoix, their chronicles as an independent people commence A. D. 1350. The Ahoms, on the other extremity, "came into Assam, says Major Jenkins, from the eastward about the beginning of the thirteenth century," about the same period that the Siamese went south. Before the thirteenth century then, the Tai formed a compact body on the east and perhaps north of Burmah. As the people at this period spread south and west, it is probable that some other nation was pressing on them from the north-east; and history makes it almost certain that this disturbing power came from China, for

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[1] ပြု။ [2] ဒန္ဓ။ [3] ရက်ခိုက်။

*Yule, page 276.

"At the epoch when Chukapha, the first Ahom chief," says Major Jenkins, "had fixed himself in Assam, Kublai Khan had just established himself in China." The immediate cause then of this emigration is to be sought in the movements of the Moguls in China. Excepting the Siamese, the whole race is now tributary to the nations around them, and the exact position of the ancient kingdom of the "Great Tai," the Laos of geographers, is unknown. These people were called Laus, and there is a wild tribe called Lawa on the mountains between the Irrawaddy and the Meinan, north of the latitude of Ava. There is a small settlement of them, however, in province Amherst; there formerly was one in Tavoy, where the Karens called them *Wa*, and I once met with a family in the valley of the Tenasserim, not far from the Siamese frontier. Whether these tribes are different members of the same family, or originally the same, is not certain. The origin of the name is uncertain. A writer in the Chinese Repository says: "The feudatory tribes inhabiting parts of Yunan, are the Lolo, or Lao, also called Shyans by the Burmese, and *Nu-i* by the Chinese, from whence the name Lao is perhaps derived. Koros says that *Lalo* in Tibetan answers to the Sanskrit Mlechehha, or Barbarian, and is applied to the Mohammedans in Tibet. By some writers the Lolo, or Lau-Laus are regarded as a distinct tribe of Shans. Lau, or Lawa, remarks Yule, seems to be applied by the Chinese to all the chief nations on the south-western frontier of Yunan."

Capt. Yule has collected all existing information concerning the Shans, and embodied in his Report, which has been well remarked, is "*the* book about Burmah." To that the reader is referred.

PALOUNGS.

The Paloungs, or Paloas are a Shan tribe found north and east of Bamoo, that are said to raise most of the ball and pickled tea so common in the bazaars of Burmah. They seem to be found associated with the Kakhyens.

PHWONS.

Another Shan tribe, found on the Irrawadi above the Bamo, was described by Capt. Hannay under the name of Phwon, by Mr. Kincaid under that of Mwoon, who wrote, "they are evidently a Shan family, in some former age broken off from the great Shan race."

Chapter IV.

KARENS.

From the time that Cain went forth to the land of Nod, or land of wanderings, to the assault on the civilised world by Gog and Magog on the other side of the millenium, the earth appears destined to have its wandering tribes hovering around its settled and more cultivated races. These wild tribes too, despite their ignorance of the arts of life, hold an important part in the history of the world. The Scythians were a terror to the Greeks and Romans; the Goths and Vandals overrun civilized Europe, the Tartars civilized Asia, and the Yajouj and Majouj of the Arabs appear destined to make a final, but ineffectual onslaught on the then cultivated races.

Mr. Hodgson, in the midst of the Tartars, is labouring to prove that all the non-Asian tribes of India are offsets of the Tartar race; while the missionaries in China are claiming the mountaineers of Burmah for the tribes of China.

"The hill tribes of China" writes Mr. Knowlton, "are generically termed Miauty, children of the soil, or aborigines. Our knowledge of them is very imperfect, being derived from the lowlanders, with whom they have been more or less at variance from the dawn of Chinese history. Glimpses of them, as they now exist, are afforded occasionally in the documents known as the Peking Gazette. In a recent number of that publication there was an appeal to the emperor from the hereditary chieftain of several aboriginal villages in the district of Lushan Yachau prefecture, bordering on Thibet, against the laird of another group of villages. To a foreigner the main point of interest in the litigation is the charge of heresy and rebellion, brought by one party against the other. What they mean by heresy we have, unfortunately, no means of knowing. We know that Buddhism has made little or no progress among these simple worshippers of nature. They are not idolaters, and it was

probably owing to the iconoclastic character of the Taiping insurgents that so many Miauty joined them in Hunan."

Karen[1] is a Burmese word applied to most of the mountaineers of Pegu and Southern Burmah. There are White Karens, Red Karens, and Blåck Karens, so designated from the prevailing colour of the dress ; Burmese Karens and Talaing Karens, from the nations with which they are associated ; and the Shan name for Karen being Yang, in Burmese pronunciation Yen, we hear of Yens, Yeins, Yenbans, and Yen-seiks. The Red Karens call themselves Kaya, and some of the Bghai clans Kayay, which may have been the origin of the Burmese word, though it has been derived from "*Ayen*,[2] prior time," or "*Ayen*,[3] bottom, foundation," and *Ka*[4] a primitive particle ; thus signifying aboriginal ; but it is quite certain, that the Karens are not the aboriginal inhabitants of Burmah.

In my early travels, the Karens pointed out to me the precise spots where they took refuge in the days of Alompra, and where they had come down and avenged themselves on their enemies; but when I asked them, "Who built this city ?"—as we stood together on the forest-clad battlements of a dilapidated fortificatian,—they replied, "These cities of our jungles were in ruins when we came here. This country is not our own. We came from the north, where we were independent of the Burmese and the Siamese and the Talaings, who now rule over us. There we had a city and country of our own near Ava, called Toungoo. All the Karens of Siam, Burmah and Pegu came originally from that region." When I asked for the time of their dispersion, they were silent. The fact was clearly before them, but the retrospect was too obscure to determine the distance. Yet they saw far beyond Toungoo. On the edge of the misty horizon was "The river of running sand," which their ancestors had crossed before coming. That was a fearful, trackless region, where the sands rolled before the winds like the waves of the sea. They were led through it by a chieftain who had more than human power to guide them ; and Sau Quala, when he first related the tradition, remarked that the whole story seemed to him like Moses guiding the children of Israel across the Red Sea and through the desert.

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To what this river, or waters, of running sand referred, was quite an enigma to me for several years, till I met with the Journal of the Chinese Budhist pilgrim Fa Hian, who came from China to India in the early part of the fifth century of the Christian era. He thus designates the great desert between China and Tibet. The governor of the "Town of Sands," he says, furnished his party with "the necessary means of crossing the River of Sand." "There are evil spirits in this River of Sand," he continues, "and such scorching winds, that whoso encountereth them dies, and none escape. Neither birds are seen in the air, nor quadrupeds on the ground. On every side, as far as the eye can reach, if you seek for the proper place to cross, there is no other mark to distinguish it than the skeletons of those who have perished there; these alone seem to indicate the route." Karen tradition says that the chieftain who led the party stretched out the staff in his hand as they crossed, from time to time, and stones rolled up in a path before them, to show the course they ought to take.

This emigration occurred about the time the Shans first settled in Labong and Zimmay; because the tradition represents the chieftain to have come over first with an exploring party, and that they selected the region around Labong and Zimmay for their future home; but when he returned with his nation, he found it occupied by the Shans.

The oldest of these cities is Labong, and, according to Dr. Richardson, Shan history states that that city was built A. D. 574; so this emigration of the Karens may have occurred some centuries after the commencement of the Christian era. Their traditions point unequivocally to an ancient connection with China; for Tie or Tien is spoken of as a god inferior to Jehovah; and offering to the manes of their ancestors is as common among the Karens as it is among the Chinese.

No further historical event has been found in their traditions till they impinge on Scriptural history at the dispersion of nations. The dispersion they represent to have arisen from want of love to each other and lack of faith in God, while the difference of language they attribute to the effect of the dispersion. Beyond this they have a tradition of the deluge, and then an account of the creation and fall of man coinciding so minutely with the statement of the Bible,—even preserving the names of Adam and Eve,—that they

must have been derived from the written record since the days of Moses. Where, for example, do we find in the traditions of heathen nations that never saw the Bible, biblical facts so accurately stated as in the following stanzas ?

" Anciently, God commanded,- but Satan appeared bringing destruction

Formerly, God commanded, but Satan appeared deceiving unto death.

The woman E-u and the man Tha-nai pleased not the eye of the dragon.

The persons of E-u and Tha-nai pleased not the mind of the dragon.

The dragon looked on them,—the dragon beguiled the woman and Tha-nai.

How is this said to have happened ?

The great dragon succeeded in deceiving—deceiving unto death.

How do they say it was done ?

A yellow fruit took the great dragon, and gave to the children of God ;

A white fruit took the great dragon, and gave to the daughter and son of God.

They transgressed the commands of God, and God turned his face from them.

They transgressed the commands of God, and God turned away from them.

They kept not all the words of God—were deceived, deceived unto sickness.

They kept not all the law of God—were deceived, deceived unto death.

The Red Karens have similar traditions to the above, which are taken from the white Karens, but they have a different name for God, whom they designate Eapay. Eapay, they say, created the heavens and the earth and all things. He associated with men at first, but for their disobedience he left them and is now in the " seventh heavens." When sick they often pray to God, saying : " O Lord Eapay, have mercy on me. I am sick, I am suffering, O Lord Eapay." They have long traditions in poetry concering Eapay, which, like most traditions, are a mixture of truth and fable. Their poetry is in lines of ten syllables to which they have plaintive tunes adapted. Like the rhymes of the other dialects, they abound in repetitions, as the following specimen shows :

" The earth at its origin, Eapay created,
The heavens at their origin " "
Man at his origin " " "
The sun at its " " "
The moon at its " " "
The trees at their " " "
The bamboos at their " " "
The grass at its " " "
The cattle at their origin " "

The absence, in all their traditions, of any allusion to any thing peculiarly Christian, proves that they never had the New Testament among them; and that, if derived from a written source, those traditions must have come from the Old Testament alone. The Karens themselves say they were obtained from their ancient books of skin, which are praised as teaching morals, in contrast with the palm-leaf books, that treat of things to make men wonder. A poetical fragment before me, says:

" The palm-leaf book that is written in circles,
The book of palm-leaf that in circles is written,
The elders drew out the lines in long coils;
They became great winding paths;
The letters of the palm-leaf books
Teach ancient wonders;
The pages of the palm-leaf books
Show wonders of antiquity.
God sent us the book of skin;
It is at the feet of the king of Hades;
God sent us the book that has neither father nor mother,
Enabling every one to instruct himself.
The book of one-sided letters, the letters ten,
Is at the feet of the king of Hades;
The book of one-sided letters, of letters many,
All men could not read."

It has been recently ascertained that there have been Jews in China from time immemorial; and five years ago the missionaries there obtained from a few Jewish families at Khai-fung-fu several copies of the Pentateuch, the only part of the Bible they seem to possess. The manuscripts are described as "beautifully written without points, or marks for divisions, on white sheep skins, cut square and sewed together, about twenty yards long, and rolled on sticks." Had these Jews, or their proselytes, been thrown among Budhist nations, lost their Pentateuch, and seen no

more books of skin, but only palm-leaf books, what more natural than to sing dirges like the above over its removal to Hades ?

A Chinese missionary writes: "We have discovered evidence of the existence of a Jewish colony in Chingfu, not far from Lushan, nor yet from the original seat of the Karens, a century before our era. Now as the Jews of Chingfu seem to have disappeared about that period, when the Huns were expelled from China, we are of opinion that they fled to the mountains, and if they were not the progenitors of the Karens, the latter at least are indebted to them for their remarkable Scripture traditions."

The historical traditions of the Red Karens harmonise remarkably with this view. They say, they came from China with Chinese, but were separated from them at [Upper] Pagan, and driven south by the Burmese. The son of the Saubway told me they had occupied their present locality for "forty generations."

Many of the Karens are quite tenacious in the belief that they formerly had books of their own. In the September (1855) number of the *Morning Star*, is an article from the pen of a christian Karen on this subject. He says: "Brethren, I wish to speak to you plainly concerning one thing. It is not true that the Karen nation had no books. The elders of past ages said, one generation to another,—'children and grandchildren, the Karens had books, perfect like other nations.' But they did not take care of their books, and therefore lost them. When they lost their books they lost their knowledge of God; and when they lost their knowledge of God, they could no longer live in peace with each other. The younger brother became an enemy, the elder brother a foe. The more they lived in hostility, the more degraded they became; the more degraded they became, the shorter the period of life; the shorter the period of life, the more they did evil; the more they did evil, the more severe were the judgments of God, afflicting them the more with sickness and death. But the elders left one promise. They said—' Though the Karen nation has deteriorated and increased in wickedness, yet love and compassion will come to them again; when love and compassion come to them again, if they observe and do, they will fraternize again into populous communities; when they fraternize again into populous communities, they will love each other and improve

physically and morally.' Again the elder said: 'Children and grandchildren, if you are enticed towards that which is black, follow not; if you are enticed towards that which is red, follow not. They are not the words and commands of your God. Before the word of your God returns to you, many will come, saying they are your God; but they are not your God. Look towards the ocean. The great bird shall ascend and spread forth its white wings. That is the white foreigners bringing you the words of your great eternal God.' The elders added: 'If you observe the words of your great God, which the white foreigners bring to you, you shall become acquainted with the righteousness of your God, and be able to discriminate between right and wrong; and when you are able to discriminate between right and wrong, you will dwell together again in prosperous communities as in the olden time; but if you neglect to observe, then will you remain in the same degraded state you are now in.'

"The words of the elders have been fulfilled in every particular. All things have happened as they said. The Karens do not love each other, so they live apart in small communities. One sets himself above another, and no one will submit to the will of his neighbour; so they live in the forests, like the pheasant and jungle fowl, one in one place and another in another place. The white foreign teachers have come with our books, according to the words of the elders, that we may live in cities and villages again, and rise."

Whatever may be the origin of the tradition pertaining to white foreigners, it is not confined to the Karens. When Gutslaff, the first protestant missionary to Siam, reached Bankok, "Our appearance," he wrote, "spread a general panic. It was well known from the predictions of the Pali books that a certain religion of the west would vanquish Budhism."

And Budhism was introduced into China, in the first century, because the emperor dreamed that the "Holy One, of whom the ancient native odes had made mention, was born in the west," and the messengers that he sent in search of him, first met with Budhist priests where they ought to have found Christian missionaries.

Karen is a name applied to several distinct tribes, united by the common bond of having one language, though spoken in widely differing dialects. Whether the Chinese Miauty are in like manner substantially the same tribe, re-

mains for further investigations to determine. Their divisions seem to be too numerous for them to be any thing more than small clans. Dr. Bridgeman, in a recent communication, says: "In a little work, now on my table, written by a Chinese about a century ago, no less than eighty two of these are named as residing in the small province of Kwei-chau." The names which are significant appear to be appellatives, as *Sang*, wild, like the Burmese *Ayaing*; *Heh-sang*, Black-wild; *Heh-kioh*, Black foot; *Yan-jin*, Dog-men; *Man-jin*, Savage men; and *Hung-miau*, the Red family. *Kolo*, the name of one tribe, resembles the Burmese *Kala*, foreigners; and *Peh-ko-lo*, another, is white kolo. None of them, however, admit of being compared with the names of the Karen tribes.

All the Karen tribes between the mouths of the Tenasserim and the sources of the Sittang, resolve themselves into three classes,—the Sgau tribes, the Pwo tribes, and the Bghai tribes.

SGAU TRIBES.

The Sgau tribes consist of the Sgau, the Munniepgha, the the Paku and the We-wa.

SGAU.

Sgau is the name by which the people recognize themselves as a tribe distinct from the Pwo or Bghai; but they also speak of themselves as Pgha-ka-nyo, or men *par excellence*, and with the cou let *Pgha-tha-pleu* pgha-ka-nyo, where the first term is the Pwo name for man; a *Pa-ku* pa-ka-nyo, Paku being the name of one of the Sgau tribes. The Sgaus are found from Mergui in lat. 12° N. to Prome and Toungoo in nearly lat. 19° N. On the east they have wandered over the water shed that separates the Meinam from the Salween to the east of Zimmay, and on the west a few have passed into Aracan. They appear to be the most numerous of all the "Karen tribes, and sometimes, in distinction from the Red Karens, are called white Karens, from the color of their dress. In some sections they are called Burmese Karens, and the Pwos denominate them Shan, but do not confound them with the Shans proper, whom they call Thaing. The Sgau may be distinguished by his tunic, which is white with a few red horizontal parallel bands near the bottom.

Where the population is sparse, as in the Tenasserim Provinces, a Sgau cares as little to be the proprietor of the land on which he erects his booth, as a bird does to own the tree on which it builds its nest, or perches to pick the fruit. About January, after taking an early breakfast, he throws his

satchel over his shoulder, containing his betel-box, and a little cold rice wrapped in a plantain leaf; and taking his large chopping-knife in his hand, goes forth, followed perhaps by one of his own children, to range the forests in search of a suitable locality in which to raise a crop of paddy next season.

The search may be continued for several days, but when he finds a place that pleases him, he digs up a small portion of the earth, and prays: "Now I will hew here, I will clear here, I will live here, I will dwell here; if it be not good, if it be not proper; if it will come to nothing, if there will be no produce; if there will be no food, no sustenance; if it will come to destruction, to desolation; if disease, if sickness will arise; when I return to-night let me have bad dreams; but if not, then let me have pleasant dreams." He then returns home with a little of the earth, and puts it under his pillow at night. Should the omens be unfavorable, he repeats the search until he finds earth to pillow on that is accompanied by pleasant dreams.

A Karen myth says, that in ancient times God minced up the flesh of all animals, and putting the mixture into a hollow bamboo, commanded the Karens to eat, saying: "Eat the whole, for whatever animal you leave uneaten will hereafter become invisible, and will eat you." The Karens eat all except the flesh of the Na, which sunk to the bottom, and hid itself from their notice. The consequence is, that unto the present day, this Na eats men unseen, producing sickness and death. Tigers, crocodiles, serpents, and all other ferocious animals and reptiles, are supposed to be incarnate Nas. It is the Na within, which makes them the enemies of man.

Before he commences hewing down the trees in his chosen field, the Karen calls out in authoritative tones: "Depart! depart Nas, depart dryads, depart sudden death, depart accidental death, depart evil, depart misfortune, depart powerful horse, depart banded elephant, depart wild hog, depart wild boar, depart yellow mother of the sky, depart iris, depart rainbow! I will live here, I will dwell here. Hot water will strike you, warm water will strike you. Fire will eat you, ashes will devour you. Depart! Depart! Depart to other waters, depart to other lands! Depart with your children on your backs, depart bearing your grandchildren! Depart far, far away."

After the trees have been felled, they are left till April, the month before the rains fall, to dry, and in the interim, a new house is built in some retired locality near the field, or where bamboos are easiest of access, the principal material used in building. The posts are occasionally of wood, but more usually of whole bamboos, the floor of split bamboos; the sides of bamboos, split in part and flattened out, as a substitute for boards, and the whole tied together with ratans, or wild creepers, where

ratans are not found. In some localities, the roof is covered in with palm leaves, in others with thatch of a species of wild sugar cane grass.

In May, so soon as the rains have softened the ground, and it has been imbued with the lye from the ashes of the timber that has been burnt upon it, the paddy is planted, as Indian corn is in America. A hole is made in the earth with a sharp-pointed bamboo, and a few seeds dropped into it. Quite different from the lowland cultivation of the Burmese, where the seed is sown broadcast on the waters.

Labor for the unseen spirits is not yet completed. According to another myth, there was in deep antiquity a poor man surrounded by wealthy people who persecuted him, and would afford him only three grains of rice from which to raise a crop. He was visited in his affliction by a tottering old woman, called gradmother Bievau, who had been driven from the doors of the rich, whom he received kindly. She proved to be a divinity in disguise, and made the poor man's three seeds produce an abundant crop, while she sent a destructive rain upon the rich, which destroyed them and their possessions; so that none remained on earth but this poor man and his family, from whom all the tribes now in the world are said to have descended. This goddess prescribed to the Karen Noah certain ceremonies he was to perform to insure her favor. As soon as the paddy is planted, she is supposed to seat herself on the top of the smoked stumps, and remain there watching its growth until it is reaped. When the plants are a few inches high, a small house, one or two feet in its largest diameter, is built for her in the field, in which are put two ropes, or strings to bind up stray spirits. When completed, the following prayer is uttered: "Grandmother: Thou watchest my field, thou guardest my ground. Look furtively, lest people come in. Should they come, bind them with this rope, tie them with this string. Do not let them go, grandmother! If they pay fines of beaten precious metal, dismiss them not; if they pay fines of white silver, dismiss them not: but if they pay fines in hill paddy, dismiss them. Guard my field carefully, Grandmother!"

After the paddy is well up, cotton is often planted, usually by the women, in the intervals between "the hills," in one part of the field; while capsicum, or Cayenne pepper, or Indian corn, will be seen in another. A few plants of millet are often raised, with two species of Job's tears, the seeds of one of which are parched and eaten like parched corn, and the seeds of the other are sewn by the females on their garments, in various figures, for ornament, usually supposed by strangers to be beads. Between some of the rows of paddy, magnificent red coxcombs may be often seen growing, and between others the long pendulous plumes, yellow or red, of a species of prince's feather, which the young ladies

insert in their ears, corresponding to the ear-drops of civilized society, and to my taste, decidedly more ornamental. Near the house, a little patch of sugar-cane is planted; often another of okra, and a third of vegetable egg plants. Some cultivate a few leeks, and one or more species of beans; as kidney-beans and sword-beans. At the foot of the largest tree in the neighborhood, the piper-betel is planted, which creeps up to its summit, whose leaf is in daily demand with every Karen, male and female, old and young, to chew with the areca nut. Large dead trees are sought, to afford support to the creeping stems of the yam, which is very generally cultivated; and a few raise sweet potatoes. Cucumbers, mormordicas, resembling muricated cucumbers, bottle gourds, snake gourds, bittter gourds, luffa gourds; two species of arum, or Indian turnip, are common; and the roofs of houses are frequently covered with the vines of the squash gourd, or a species of pumpkin. Occasionally, an arnotta tree is planted by a Karen house, for the red dye the seeds afford, and often several plants of the castor oil tree, the seeds of which are used by the women to fix their dyes. Tumeric for its yellow, the soap acacia for its green, and indigo for its blue dye, are frequently cultivated by the Karen females.

The paddy requires to be weeded, and the process is repeated two or three times before harvest; like hoeing corn in America. Men, women and children all engage in this labor; and the latter more than the former. Should the appearance of the crop be unpromising, it is attributed to the evil eye of one or more unknown Nàs; and an offering is made to them. A little of everything growing in the field is put into a fanning basket, and then shook up, as when fanning rice, with the following prayer: "Pwo Nà, Sagau Nà, Foreigner's Nà, Westerner's Nà; horse Nà, dog Nà, rat Nà, bird Nà, squirrel Nà, bamboo-rat Nà, pig-tailed monkey Nà, white-eyelid monkey Nà, dove Nà, sparrow Nà, pheasant Nà, wild-fowl Nà, Nà of the dead, Nà of the deceased, O ye many, ye multitude! If you have gazed on my paddy to blast it, that it grow not, that it increase not, I will guide you away, lead you away with this rice, and everything growing in the field; return, go!" The offerer then walks away with his offering, as if followed by hungry animals, and throws it down for them to eat outside of the field.

From all the birds and beasts enumerated, with others, the crop may suffer damage, so as soon as the paddy is in the ear, a little booth is erected in the field, which some one of the family occupies day and night, to make noises and drive away depredators—like the "cottage in a vineyard" of Isaiah. Wild hogs are very numerous every where, and are very destructive, rooting up the paddy; while peacocks devour the ears as soon as formed, and parrots descend on the fields ready for harvest, in immense flocks.

While thus engaged on his farm, the Karen has to provide meat for his family, or live wholly on rice and vegetables. The streams are constantly visited for fish. Children often angle, women go out with small hand-nets on a frame, while the men form parties and visit particular localities with large nets; or they dam up brooks, and set conical traps where the waters escape; or they wade into the waters after dark with a torch, and strike the fish that are attracted to the light with a large chopping-knife. When a man has leisure, he will take his bow and arrows, and go monkey hunting. There is, however, only one species, the white-eyelid monkey, which is eaten. The Karens say, when the monkey is wounded, it will take the arrow out of the wound and smell it. If the arrow be not poisoned, it will endeavor to escape; but if the odor of poison be discovered, it gives itself up in hopeless despair.

Lizards and snakes, too, are in the bill of fare, but the Karens are very choice of the species. A beautiful little sand lizard is considered quite a delicacy, as are also three or four species of monitor, lizards two or three feet long, that prey on fish, and abound in trees on the banks of rivers. Their favorite snake is a large species of python, an Asiatic genus corresponding to the American boa. I have frequently witnessed their capture, when ten or more feet long. They are often seen coiled up in the branches of a tree that leans over a stream, ready to plunge into the water below on any large fish that may pass beneath. A Karen creeps stealthily up the tree, with a slipnoose at the end of a long bamboo, and when in a favorable position behind the snake, endeavors to bring the noose to the snake's head. Should the snake leap for the water when the noose is perceived, it is usually caught, and hangs dangling in mid-air by the string, utterly unable to extricate itself. Should it escape the noose, and reach the water, there are usually Karens there waiting for it with their knives, and though it fights manfully, with a head and teeth like a young bull-dog, it seldom escapes. When it runs at one man, another seizes it by the tail, and as soon as it turns, it is struck again near the head. Deer and wild hogs are caught in traps. The few who have muskets, sometimes succeed in killing an elephant or rhinoceros, a wild ox or a wild buffalo, whose flesh is shared with the neighbors, and cut up into narrow strips, and dried in the sun or smoked.

The harvest is ripe early in October, two months earlier than the lowland paddy cultivated by the Burmese. The females do as much of the harvesting as the men, and often more, using the sickle with equal skill. The threshing is done by the men, treading the grain out with their toes, or beating it in wisps against a beam. While threshing they pray to Bieyan: "Shake it off, Grandmother! shake thyself. Raise to the hills, raise to the mountains, rise in mid-air, rise look on the sun, rise look

on the moon, rise look on the heavens, rise look on the earth! May my pile of paddy be the size of a mountain! Let it rise up after the sun! Let it rise up after the moon; or the youths and maidens will come and laugh at thee in derision. Shake thyself, Grandmother! shake thyself!"

After harvest, the Karens are more at liberty than at any other period of the year, and they then visit the neighboring Burman cities with articles for sale, to obtain money to pay their taxes, buy salt, and procure other necessaries, or luxuries, according to their ability. The fowls they raise produce considerable sums, and the wild bees which abound in their jungles, furnish them with honey and bees-wax, which command good prices. Sometimes they succeed in killing a male elephant, whose tusks are valuable; or a rhinoceros, whose horns sell high to the Chinese, who rasp them up, and take them for medicine. Elephant hunting, however, is a dangerous business for the Karens. Unless an elephant is shot through the brain, a dozen balls will not bring him down; and so soon as he finds himself wounded, he turns exasperated on his enemies, whom he can always outrun on open ground. One of the best members of the Matah church was trodden to death, a few years ago, by an elephant he had wounded. Where cardamums grow wild, they are gathered and brought to market. Some cut ratans, or make mats of split bamboos, or the leaves of a species of screw pine, or strip the inner bark of a species of hibiscus, of which the natives make ropes, to procure a few rupees. Where tin is found, as at Tavoy, a few wash the sands of the streams for grains of tin; and where the Burmese make silk, as at Toungoo, the Sgaus raise the silkworm quite extensively.

In some districts, they supply the market to a limited extent with chillies, cucumbers, pumpkins, gourds, sweet potatoes, yams, tumeric, and ginger. Symmes wrote half a century ago of Toungoo: "The country produces the best betel-nut in the empire;" but nearly the whole of it is derived from the Karen gardens in the south-east portion of the province.

The Sgaus know little more of the mechanical arts, than Adam did when he was driven out of paradise. Yet it is not for the lack of native talent, for Mr. Beecher has made some of them very good carpenters, and at Rangoon many are largely engaged in brick making, and I have seen very tolerable gun-powder entirely of their own manufacture. I am writing in a very good easy chair with a ratan bottom that was made by a Karen without any instruction whatever; and they have built me a very good small wooden dwelling house without any foreign aid. Some of the women are well skilled in weaving and embroidery; and their dresses, adorned with the golden green wing cases of the buprestis beetle, or the seeds of Job's tears, are very pretty.

Marriages are usually contracted by the parents while the parties are in infancy, among all the Karen tribes. In one large village, I could not find a single child that was not betrothed excepting a poor girl who was much deformed with goitre. Marriages are consummated at a very early age, and hence a very puny race is produced. Other consequences of these betrothals in infancy are unhappy unions, family quarrels, litigations and separations. If a young lady is rejected by her betrothed, she is entitled to claim a kyie-zie for her head, another for her body, and a gong to cover her face for shame.

All the Sgau tribes, and the Pwo proper burn their dead, though tradition says they formerly buried. A bone is taken from the ashes, usually the back bone; and in the dry season, when most at loisure, a feast is made and the bone is ultimately buried. The bone, when the feast is made, is placed in the centre of a large booth erected for the purpose, and around it are hung the articles belonging to the deceased. A torch is placed at the head, and another at the foot, to represent the morning and evening stars, which the Karens say are spirits going to Hades with lights in their hands; and around the whole a procession marches singing dirges. The following affords a specimen:

Mother's daughter is proud of her beauty;
Father's son is proud of his beauty;
He calls a horse, a horse comes;
He calls an elephant, an elephant comes;
On the beautiful horse, with a small back,
He gallops away to the silver city.
O son of Hades, intensely we pity thee,
Panting with strong desire for the tree of life.

The jambu fruit, the jambu fruit hangs drooping o'er the lake,
Red jambu flowers, red jambu flowers, hang drooping o'er the lake.
Should seeds of the tree of life still exist,
Then man awakes up from death in Hades.
O son of Hades, intensely we pity thee,
Panting with strong desire for the tree of life.

MAUNE-PGHA.

The hills between Youk-tha-wa[1] and Meet-gnan[2] creeks are peopled by the Maune-pghas, a tribe differing from the Sgaus principally in a change of dialect. The name may be derived from *mau*, to drag or lead; *ne*, to obtain, and *pgha*, persons; thus signifying persons led captive. This signification is received by some Karens, who then account for it by saying, it was given to all the villages who paid taxes to the Burmese government. It is fatal to this derivation that several large villages that paid taxes in the Paku district never had this name applied to them.

[1] ယောက်သဝါ။ [2] မြစ်ငန်း။

PAKU.

The district between the eastern boundary of the Maune-pghas, the southern limit of the Bghais, and the water-shed that divides the Sitang and its tributaries from the valley of the Salwen, is peopled by Pakus. The name is sometimes applied generically to all the Karen population of southern Toungoo, including the Maune-pghas. The people are substantial Sgaus, though there is much in their dialect allied to the Pwo, but no final nasal in their pronunciation. Tradition says that the region was formerly inhabited by Pwos, but they were driven south by the Pakus, who occupied the country thus abandoned. When the English took possession of Toungoo, the villages were engaged in constant feuds among themselves; robbing and killing, and kidnapping and carrying into slavery whenever opportunity offered. As no village would help another, they became an easy prey to the Red Karens, who made constant inroads upon them. The first teacher who came among them had a school house built for him at the cross roads whence the enemy came, in order, as they afterwards said, that he might be the first to suffer. The enemy did come, carried away several, wounded others, but left the teacher unscathed. Again they came, but finding the people prepared bristling with spears, parleyed and returned. Such was life in Paku-dom long after the British flag stood waving over the city in sight on the plains below.

The Paku tunic is white without stripes, but with various embroidery on the bottom. This embroidery is varied by different villages, so that each clan can be easily recognized.

WE-WA.

We-wa, in Sgau *We-wau*, is a Bghai adverb, signifying to and fro, backwards and forwards, and is applied to several villages which, with a single exception, are all on the eastern side of the water-shed, and between the Sgaus and Bghais. They derive their name from their dialect, which oscillates between the Sgau and Bghai. The people do not seem to know whether they were originally Bghais or Sgaus; but I have no doubt in classing them with the former. They are in the lowest grade of civilization. I have visited most of their villages, and in most of them not a woman can be found who knows either how to spin or weave, arts universally known among the Sgaus. They clothe themselves with the clothing of their neighbours, which they obtain as best they can. Some wear Bghai tunics, others, Sgau; some wear Bghai pants, others Paku frocks; while many go nearly naked. In villages where there is hoar frost, children up to five or six years of age may be seen without a rag. No marvel that, in such villages I find on enquiry the annual mortality at from ten to fifteen per cent.

BGHAI TRIBES.

The Bghai tribes are the Tunic Bghai, the Pant Bghai, the Laymay, Pray, the Manu-manau, and Red Karens. From the mouth of Thouk-ye-khat creek to near the British boundary and the Shan state of Mobya, the whole country from the Sitang to the Salwen is peopled, nearly exclusively, by the Bghai tribes.

The Bghais are much greater savages than the other Karen tribes, kidnapping and murder being regarded as lawful avocations, and for success in their forays they are in the habit of frequent prayer to the presiding spirits of the country, without wincing at the immorality of robbery and murder, manifestly deeming their gods as destitute of the moral sense as themselves. Each village is independent of every other village and of all other communities, the chief being king in his scant domain ; and every village, like the Scottish clans, has old feuds with other villages, which produce incessant predatory warfare. Early in the present year the men from a large village in the south-east part of the province of Toungoo, made reprisals on a christian village, while many of the inhabitants of the latter were absent at an annual meeting. They killed two or three persons, tore up the bibles they found, carried away several captives and decamped. After the interval of a very few days their own village was burnt, their property seized, and the captives delivered. This had such a salutary influence upon them, that they have since asked for a teacher, and expressed the determinatian to abandon their old habits. Occasionally a chief of more than ordinary energy arises, who contrives to bring the other chiefs around him under his subjection. The coalition has the effect to induce them to forget their mutual animosities, but it makes them more dangerous to their neighbours, because it makes them more powerful, and power, in their code, is right.

Each village consists of a single house, or at most two ; built like a bazaar, with rooms on each side of the walks that pass through the building. The size of a village is estimated by the number of hearths the house contains, every family having its own hearth. The largest I have visited contained seventy five. The houses are raised high above the ground, which gives room for rows of pig-styes below, while the fowls roost in peace on the rafters above ; but neither seem to give the slightest annoyance to the olfactory nerves of the inmates. The compound is usually inclosed by a high fence, many by a *chevaux-de-frize* of pointed bamboos, and not a few by traps and pit-falls ; so that no one visits a strange village without one of its inhabitants for a guide. When a guest is received, a place is pointed out for him to occupy, and on no account is he to move from it. If he does, he is speared as an enemy. With all these precautions, many of the villagers live in such constant dread of their foes, that all the men sleep out of their house on the ground, to be

ready to repel a sudden attack; while the only access to the house is from a trap-door in the center, down which a ladder is placed in the day time. In short, each village or house, is a fortress. In consequence of this state of society, there is a tract of land forty miles long within the British territories, on the east bank of Thouk-ye-khat creek, of which we know no more than we do of the interior of China.

Each village builds a new house usually every year, as near to the cultivation as practicable, and on first occupying a house a feast is made; an ox or buffalo is killed, and an offering is prepared for the spirits that preside over the country. When all are seated around the food and drink, each one takes a draught of the spirituous or fermented liquor that forms a prominent part in the offering, and repeats the following prayer:

"O Lord, Lord of the lands, Lord of the waters, Lord of the streams, Lord of the streamlets, Lord of the mountains, Lord of the hills, Lord of the head waters, Lord of the junctions, drink what is in our hands, eat what is at our feet. When we work, may we eat; may we work without labour and eat to satiety. May we complete what we undertake, may what we do prosper. May we be strong, may we retain our health. May we be stable as the rocks, indestructible as the cooking stones. In the water may we be like rocks, on land like wood-oil trees. May we be hard as stone, impenetrable as iron. When we weed, may we obtain the paddy flower, when we clear may we obtain rice. May we be able to dig out the pangolin,* to purchase drum-gongs. May we be able to buy swords with scabbards, spears with sheaths. May we spear the wild boars from the rock, may we seize slaves from their place of flight under the rock. May the devices of others against us be confounded; when they plot our death may we escape. When the tiger lies in wait for us, may he yawn; when men lay in ambush for us, may they cough; when tigers would attack us, may they wait for each other till we are beyond their reach; when men would assail us, may they be struck with shame and fear. May our names become famous; may the renown of our names be constantly extending itself. May we occupy the places of our mothers, and become the substitutes of our fathers. When we get possession on a stream, may we obtain it to its source, occupy it to its mouth. When we lay plans to seize, may we obtain; when we devise death, may we succeed in killing. May success attend us in all we do till we die, till we are lost. O Lords, help us; O Lords, deliver us; drink what is in our hands, eat what is at our feet."

Their forays are conducted in a very systematic manner. When a man determines on attacking a village, he kills an ox or a buffalo and makes a feast, to which he invites all that he wishes to partake in the expedition. The invitation may be confined to

* That is, overcome difficulties, the pangolin being difficult to reach.

his own village, or it may be extended to several others in the neighbourhood, according to circumstances. All that partake of the feast are pledged to the work, and to sustain each other in the event of reprisals being made. Each has his appropriate duty allotted to him. One is a guide, and he is addressed by the commander in the presence of the company, thus: "You have reconnoitered the road. You say you are a hunter; you say you are a brave. If the expedition does not arrive, if the road is not plain, the fault is yours." To this he expresses his assent, and is then considered as sworn in. Others volunteer to be a storming party, and pledge themselves to enter the house or die in the attempt. The chief says to these: "You are hunters, you are braves that will ascend into the house, that will mount the dwelling. If you succeed you shall have gongs, you shall have oxen and buffaloes. Should you be unsuccessful, should you be killed, ask for your life a fowl, not a buffalo, not a hornbill;* and for a shroud ask a cotton cloth, not a silk garment."

Another company engages to go before the storming party till they reach the house, and in the event of a repulse, they pledge themselves to be last in the retreat. These are charged: "you are skilful, you are able, you are brave, you are strong. You go before, you return behind. If the fighting men resist, if you fear, if you flee, should the retreating party meet with any obstruction, and any evil befall them, the fault is yours. But should you be successful in aiding them, so that victory is obtained; you shall eat oxen, you shall eat hogs." After these parties have been told off and their pledges taken, the undistinguished throng is addressed: "If you so demean yourselves as to obtain, so as to overcome, you will hereafter share in the spoils with the whole company."

Bghai is the name by which the people are designated by the Pakus or Sgaus, and appears to come from the numeral affix in Bghai, applied to intelligent beings, which is *pghai*. Thus *Pieya-ta-pghai* is "one person" in most of the Bghai dialects, but the Bghais designate themselves by the word for man. Still, they use the term *pghai* with reference to other sections of their family, but never to themselves.

They are distinguished from the Sgaus by always burying their dead. Their coffins, like the Chinese, are made of a single log of wood with a place for the corpse hewn out.

TUNIC BGHAI.

The Bghais are divided into those who wear tunics or frocks, and those who wear pants. The tunic wearers are desig-

* Every man has his price among the Bghais, and his relatives demand it of the parties through whom he loses his life. The man that introduces a fatal disease into a house or village, has to pay for the lives of all those that die from it. A hornbill being out of the reach of a Karen, it is here put for any thing difficult to be obtained.

nated by the latter, as *Pghai-ka-teu*, or "Bghai at the end of scarcity," food being more abundant in their localities. Their villages are not numerous, and, with two or three exceptions, are confined to the hills and valleys on the right bank of Thouk-ye-khat creek within a range of about forty miles above its mouth. With a few exceptions they are the only villages that have ever paid taxes, and are rather more civilized than the others, though they have no permanent cultivations, like the betel and orange groves of the Pakus and Mannie-pghas.

They are readily distinguished from the Sgau tribes by their tunic, which has perpendicular red bands on a white ground, while the Sgau garment has the bands horizontal. The Burmese give them different names, according localities. Some they call *leik-bya-gie*,[1] "great butterflies," others, *leik-bya-gnay*,[2] "little butterflies."

PANT BGHAI.

The Bghais who wear pants are divided into the *Bghai-mu-htai*, Eastern Bghais, or Red Karens, beyond the eastern mountains in the valley of the Salwen, and the *Bghai-ho hta*, "Upper Bghais," as designated by the Tunic Bghais, because they reside on the rivers above them; and as but few of their villages ever paid taxes, the Burmese call them *Ka-yen ayiang*, "wild Karens." From the mouth of kannie creek five miles north of Toungoo they are the sole inhabitants of the western side of the great water-shed up to the vicinity of the British boundary. In the northern part of Toungoo, the villages near the Burmese settlements are considerably civilized, and the inhabitants raise the silk worm extensively, but in the interior the people are in a wretched state of barbarism. They eat dog's flesh without salt, and rice without vegetables. In some villages not a woman can weave, and the inhabitants are entirely dependent on begging and stealing for their clothing.

The men wear short white pants, which scarcely reach down to the middle of the thigh, with red radiating lines wrought in them near the bottom, as the rays of the rising sun are sometimes represented.

LAY-MAY.

South of the Hashwie, and north east of Toungoo, is a small tribe on the water-shed which the Burmese call Lay-may, or Black-necks, from the black bands they wear around the neck. The Bghais call them Pray, and regard them as a member of their own family.

MANU-MANAU.

A large number of villages between the Sgaus and Red Karens speak a dialect which is a mixture of the two, and they are de-

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[1] လိပ်ဗျာကြီး။ [2] လိပ်ဗျာငယ်။

nominated by the Burmese *Manu-manau*. Some have classed them, with the Red Karens, but the relationship is not acknowledged. The Red Karens call them Pray. They are undoubtedly of Bghai origin, and dress like the other Pant-Bghais.

RED-KARENS.

The Eastern Bghai, *Bghaï-mu-htay*, the Karen-nie, or Red Karen, of the Burmese, call themselves *Kă-yà*, their term for man. The Shans call them *Yang-laing*, which signifies Red Karen, like the Burmese name, which was conferred upon them from the colour of their dress, that originally was all red, as it still is occasionally, but black garments are now commonly seen intermixed with the red. Yule says: "It is generally believed that they are not in any way closely allied to the Karens proper of Pegu and Tenassarim, but they are rather a Shan race. I have not been able to find any proof of the latter kindred than their being a *gens bracata*." This last proof fails, when it is known we have pant-wearing Karens at home within sight of Toungoo. The men wear short red pants with perpendicular, very narrow, black or white stripes. Somtimes the pants have a black ground and the stripes are red or white. Below the knee are black bands formed of twisted thread and varnished with black varnish that abounds in their country from the *Melan-orrhœa usitatissima*. A wrapper of white with a few red or black stripes is wrapped around the body, and many wear Shan jackets which seems to be an addition to the original Karen dress. A bright red turban is worn on the head, and an ornamented bag is hung across the shoulder. Every man carries a short knife in his belt; many have swords, and those who are destitute of muskets or match-locks, carry from one to three spears, which are used in war like javelins, being thrown from the hand. Every man owns a pony, so that in time of war they are a mounted militia, when all turn out to service, and the cultivation is carried on exclusively by the women. The female dress is peculiarly picturesque, though every garment is only a rectangular piece of cloth. The head dress is a large red or black turban, wound up to form a small tower on the top of the head. There is no gown, but a cloth, like the Roman toga, is tied by two corners on the right shoulder, and the left arm is sometimes kept covered, but more often it is drawn out above the garment. A second piece of cloth, like the first, is kept in the hand like a loose shawl, or tied around the waist. One of these garments is usually red, and the other black, though occasionally both are red. For a petticoat, another rectangular cloth is wrapped two or three times around the person; and is kept in its place by a wampum belt, some half a dozen inches in diameter. Another enormous band of beads is worn below the knee, and on the ancles large silver bangles. Both sexes wear bangles on the wrists, and the women a profusion of silver necklaces formed of ingots of silver, or coins; to which are added a dozen or more strings

of beads. Ear-drops are worn by both men and women, and the latter add silver ear plugs, an inch or more in diameter. Beads are as numerous among the women, though all imported, as among the American Indians, and the profusion of silver ornaments seen indicate any thing but poverty.

Every Red Karen man has radiating lines tattooed on his back; which they exhibit with considerable pride, as their coat of arms; and indeed with one or two wild beasts for supporters, it might be worked into quite a respectable escutcheon.

The country inhabited by the Red Karens is the finest in the interior of southern Burmah. It is a high table land, several thousand feet high, pillared on limestone. It is an undulating country with a good soil, with long dry ridges and deep hollows in which the water sinks to arise in perrenial springs in other places. The capital of western Karenie has no water for its fifteen hundred or two thousand inhabitants, but what one of these springs supplies. The country with the mountain around it resembles both Scotland and Vermont; and the inhabitants are only what the Highlanders were in the good old days of the Bruces and the Wallaces.

They are governed by a Saubwa, who is now according to his own statement more than ninety years of age, but still active and able to do business. Many years ago, a member of the Burmese royal family, Papho, fell into disgrace at Ava, and he fled into the Karen country for refuge, where he was protected by Kapho, the present Saubwa, whom the Burmese designate Kapho-gyee. In process of time, the Burman succeeded in supplanting the Karen chief, and obtained the supremacy of the Eastern Red Karen country, which he made tributary to Ava, and was on this account received back to favour at court. He died a few years ago, and his two sons are now the rulers, but the principal power is in the hands of a Shan who is nominally under them. The Eastern Red Karens are said to be three times as numerous as the Western, and these must amount to fifty or sixty thousand. There are more than one hundred villages in Western Karenie, of which ninety-four are large. A few have three or four hundred houses, others two hundred, and many more than one hundred. The people, with all the savageness for which they are reported, are by far the most civilized Karens known. They live in larger communities, have better houses, are better clad, are more skilled in the arts, and are more vigorous, active and laborious than any jungle tribe in the country. They make their own knives, axes, swords, spears, hoes, bangles, silver ornaments, earthen ware, bits and bridles, saddles and stirrups. Every foot of land they cultivate is hoed with a heavy hoe, of the European model, such as is never seen among either Burmese or Karens, but is used by the Chinese. They have cattle in great abundance, which are trained to carry panniers, as don-

keys are in Europe. Almost every plant cultivated in Burmah is seen growing here. Jacks, tamarinds, mangoes, guavas, limes, citrons, plantains, oleaster plums and other fruits, are seen scattered in all their villages. Millet is cultivated in great abundance. Sword beans, kidney beans, dholl, vegetable eggs, roselle, okra, leeks, gourds, pumpkins, sugar cane, and yams, abound. Cotton flourishes here better than in any other locality that I have seen it out of America, and various dye plants are cultivated. They fence in their yards and fields, and have styles and bars to take down and put up on their cross roads, reminding the traveller of the country in England and America, before the advent of railroads. They make both a spiritous and a fermented liquor, the use of both which is said to be nearly universal; yet I have never seen a Red Karen intoxicated, though drunken Shans may be seen among them daily.

A large portion of the people are slaves, but slavery here exists in its mildest form. There seems to be very little difference in social position between the master and slave. There is a little cluster of Shan houses in Kapho's capital, whose inhabitants are the slaves of the Saubwa; but he makes no demand on their earnings, and the men are allowed to go where they like. The women however are forbidden to leave the village, which is the only mark of slavery on them. The slaves that live in families appear to be as well fed as their masters, and some of them I know to be better clad than any of the inhabitants of the villages from which they were stolen.

From all I have seen of the Red Karens, it is difficult to believe the stories told of their ferocity, and yet they are too true. They are civil, good tempered, and intelligent; and might be made any thing desired, with right training and God's blessing, and the two usually go together. They afford a singular specimen of how a people can do without doctors, lawyers and police men. When sick, they know of no medicine but offering to evil spirits; and yet, I see as many old people among them, if not more, than in cities where there is either a homœopathy or allopathy physician, at every corner; and a druggist shop, or a vender of quack medicines in every street. They have no lawyers; every one pleads his own cause, and offers his present to the judge without being charged with bribery; yet when the old gentleman from whom there is no appeal decides the case over his pipe in the palace yard, both parties retire apparently as well satisfied as litigants usually are. There is no police, no prisons, no penitentiaries, no schools for the reformation of young thieves; and yet they have no locks on their doors, no watch dogs in their yards, no men traps or spring guns in their gardens; and still thefts are very uncommon. The men often talk very loud, but they do not often break each other's heads as in christian countries.

PWO TRIBES.

The Pwo tribes are the Pwo, the Shoung-khie, the Kay or Ka, the Taru or Kho-hta, and the Mo-pgha; with perhaps, the Hashwie, the Toungthu, and the Kyen.

PWO.

The Pwos are found scattered from Mergui to a short distance above Sitang, in the same districts, usually, as the Sgaus, though in distinct clusters of villages. They are however much less numerous than the Sgaus, but a decidedly more muscular people, with more settled habits, and preferring the plains to the hills. The Burmese call them Meet-khyen,[1] or in some sections, Talaing Karens; and the Sgaus denominate them Pwo, but their own distinctive name is *Sho*.

Their tunic is handsomely embroidered near the bottom, resembling the Paku, but much wider.

SHOUNG.

Near the northern boundary of the British province of Toungoo is a tributary of the Sitang called Shoung. The inhabitants of the little valley through which it runs, call themselves Shoung-khie-pho, or "sons of the head waters of Shoung." Their dialect proves them to be of Pwo origin. They have a tradition that they formerly dwelt in the vicinity of Thathung, but were driven north in the wars. They wear pants, like the Pant-Bghais, on whose borders they dwell.

KAY, OR KA.

East and north-east of the Shoung, and principally beyond the British boundary, are the *Kay-khen*, *Kay-la*, and *Kay-pie-ya*, or Upper Kay, Lower Kay, and Kay's people. *Kay* is the name the Bghais give them, but they call themselves *Ka*. The Red Karens call them *Pa-htoung*. The natives regard their language as related to the Shoung, as the numerals and a few other words I have collected certainly are; but a considerable proportion of its vocables are allied to the Red Karen. They appear to be quite a pugnacious race. Twice have our assistants been among them within twelve months, at different points, and twice have they found the villages at war with each other. Last year they had just returned from their work of pillage and murder, and the assistant was instrumental in inducing them to release a captive. This year a Bghai teacher went to another village and found the villagers fighting with the next village beyond. While there seven captives were brought in, one of whom was barbarously murdered in his presence.

Many raise the silk worm, and make silk. The men wear short pants like the Bghais, but they are usually made of silk, handsomely embroidered. When a chief, or any other slavehol-

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[1] မြစ်ချင်း.

der dies, one of his slaves is said to be buried alive with the corpse, to wait on him in the next world, a custom that formerly existed in China. A cylindrical hole is dug deep, into which the slave with some provisions is put; over him, the pit being widened for the purpose, the corpse is laid, and the grave is then filled up with earth.

TARU.

North and east of the *Kas*, and west of the Red Karens, are a numerous people which the Red Karens call *Taru*, and the Burmese Be-lu; dividing them into the *Be-lu-gie* and *Be-lu-gnay*, or great Belus and little Belus; but they call themselves *Khu-hta*. They shave the head, leaving a tuft of long hair on each temple; wear very short pants, and bands of beads around the neck. On the whole they make decidedly the most hideous appearance of any men in the country, and come very near to deserving the name the Burmese have bestowed upon them of Belu, or monster. Still, their language gives irrefragible evidence that they are of the same stock as the comparatively civilized Pwos and Mopghas, being intermediate between the two, and forming just the link that was wanting to unite the Mopgha with the Pwo. Though now, with no Karens but a wide belt of Bghais around them, they still have a tradition that they were formerly associated with the Pakus, but quarreled, fought and separated; a tradition singularly confirmed by their language; and which harmonizes with the tradition of the Pakus, that they drove Pwos out of the lands they now occupy.

Many years ago Dr. Jones wrote me from Bankok that there was a tribe of Karens in eastern Siam, called *Kha*. Can these be related to our *Khu-hta*, or *Khu. Kay*, or *Ka*? There are villages of Taru, I am told, near the Salwen, in eastern Karenie.

MOPGHA.

The Mopghas occupy the secondary range of hills between Thouk-ye-khat and Kannie creeks, whose mouths are about eleven miles apart, the latter falling into the Sitang five miles north of Toungoo. There are not more than ten or eleven villages left of the whole tribe. They have some indistinct traditions of having been much more numerous formerly, but were reduced by wars. They skirt the Bghais on the west, and their dress cannot be distinguished from the tunic wearers, nor have they any distinctive mark except their dialect. A few of their villages call themselves Mopgha, but others know no name for themselves except the term for man, which with some is *Pie-do*, with others *Zezau*, and with others *Plau*. The Burmans have different names for them, some being *Tau-bya-gie*,[1] "Great bees," and others *Tau-bya ngay*,[2] "Little bees." They have been called Bghai-Pwo, from their dialect having final nasals like the Pwo.

[1] တောင်ပျားကြီး [2] တောင်ပျားငယ်

HASHU, OR HASHWIE.

On the water-shed between the Thouk-ye-khat and Poung-loung creeks, and in about the latitude of the northern boundary, is a small tribe that the Bghais call Hashu, and who call themselves Hashwie. Judging from the dialect of a single individual with whom I met, I regard them as a branch of the northern Pwos. Their numerals lack the peculiarity of the Bghai family.

TOUNG-THUS.

"There is a people," wrote Capt Foley, whose regiment was a few years ago stationed upon this coast, "located in various parts of the *Bama* (Burmese) and *Shan* (Siamese) empires, who are distinguished by the appellation of '*Ton-soo*,' or '*Ton-dzoo*:' they have a language of their own, and differ in feature, dress, and domestic manners from the inhabitants of the country in which they reside; they never intermarry with their neighbors, and assert their descent from '*a people who came from the north*;' they are an ugly, swarthy race; both men and women closely resembling the picture of the *Huns*, drawn by Gibbon, in his immortal history. Broad faces, flat noses, smalls eyes, short, squat, 'but athletic' figures, are the most prominent beauties. The men wear their hair long in common with the *Bama*, but their dress, which is always of a dark colour, much resembles the garb of the Chinese: the women have a fillet of dark coloured cloth 'generally with a red or white border,' tastefully arranged as a head-dress, and falling down over the back; a mantle of the same colour and material, extending from the shoulders to a little below the knee, is the only remaining garment. Their legs, which are extremely thick, are covered with a number of metal bangles; these, with the exception of ear-rings are the only ornaments worn by the females of the *Ton-soo* race.

"I am persuaded that these people are the descendants of the "TANJAU" described by Gibbon, *a remnant of the ancient Huns!* preserved during a lapse of 1783 *years* uncontaminated with the blood of strangers!"

The Toungthus are so called by the Burmese from *toung*, south, or mountain, and *thu*, person, signifying either southerners, or mountaineers. They call themselves *Pa-au*. In Tavoy and Mergui they are known only as a tribe of pedlers. In province Amherst they have a few villages on the banks of the large rivers, but the great body of the nation is scattered over Burmah Proper, the Shan States, and even into Cambodia; but in the aggregate they cannot be a numerous tribe.*

They represent themselves as formerly having a king of their own, the seat of whose government was at Thatung, a city which

* Mr. Tracy found a Toungthu village near the Red Karens, on a branch of the Salwen, where the whole of the inhabitants of two hundred and fifty houses, were engaged in making articles for the Shan market.

we have seen is claimed by the Talaings as their most ancient capital." Bugdagautha, who first brought from Ceylon the Buddhist scriptures, they claim as their countryman, and say that he brought over two copies of the sacred books; and that the king of the Talaings demanded one copy of the Toungthu king, and on being refused went to war, which resulted in the destruction of the city of Thatung, and the scattering of the Toungthu nation unto the present time.

Their language has the greatest affinity with Pwo Karen; half the roots being of common origin, and the least with the Talaing among the languages spoken around them; but it has some features different from all. There is a *v* in the language, a letter that is not found either in Burman, or Talaing, but common in Red Karen. It is commonly supposed that they have no written language, but they write their own tongue in the Burmese character with great facility. They do not always attach the same sounds to the letters that they have in Burman. Some of their vowel characters have two sounds as in English, and a few of their letters have Talaing rather than Burman sounds attached to them, yet these discrepancies appear to occasion very little difficulty in practice.

Having no theory to propound concerning their origin, I have inserted Capt. Foley's. Kosmos De Koros thought the Thibetians of common origin with the Hungarians; and the Toungthus are quite as probably a tribe of Huns.

KHYEN.

The Khyens, or Kayns, or Chins, are a considerable tribe whose home is on the Yoma mountains that stretch up from Aracan to the Naga hills, but who are scattered in small settlements on the north of Pegu as far east as Toungoo. Col. Hanny identifies them with the Nagas, and Capt. Yule says: "They must be closely allied to the Kookies." Major Phayre appears to regard them as a Burmese tribe, while I feel disposed to class them with the Karens. The legitimate inference is that their affinities are not well defined.

They are remarkable for tattooing the faces of the women, which gives them a most demoniacal appearance, and is well adapted to answer the purpose for which the practice was introduced. It is said their women were very handsome, and many of them were therefore captured for the king's harem, and the custom originated to prevent this calamity. Under the English government the practice will probably fall into disuse. I have seen one girl of fifteen or sixteen that had not been tattooed, and whose agreeable features seemed to show the king's good taste. Their language, possessing a final nasal, assimilates them to the Pwos, and Phayre says: "These people call themselves *Shyou*, or *Shyu*," which is another bond of union, for the Pwos call them-

selves *Sho*. The Burmese must have seen something common to the two tribes, when they called the Pwos Meet-khyen, or "river-Khyen."

SHAN-KARENS.

The Shan word for Karen is Yang, softened in Burmese to Yen, and hence we hear of several Karen tribes in the Shan States north of Mobya, whose names have Yen for the basis.—Yens, Yeins, Yen-baus, Yen-seiks, Black Karens, Toung-yo-thas, and Pandungs, are different Karen tribes, scattered in the Shan States north of Mobya, of whom little more is known than the names.

YEN, OR YEIN.

A pilgrim priest described to me a tribe of Karens eastward of Ava, which he said the Burmese denominated Yen. They are mixed with the Shans, and are much more civilized than the other Karen tribes. They are probably the same people as the Yein that Mr. Kincaid met in Ava.

YEN-SEIK.

The Yen-seik are a civilized tribe of Karens who wear the tunic, and inhabit the Shan States eastward of Ava.

YING-BAU.

North of the Red Karens Mr. Tracey, the receiver of customs at Toungoo, found a Karen tribe, dressing like Red Karens in short pants, that the Burmese call Ying-bau. He found the Karen women at the pass of Nat-teik, where the road descends from the table land into the plains, selling water to travellers. The name is very near *Thing-bau*, the Burmese pronunciation of Singpho, but they cannot be the same people.

BLACK KARENS.

In the Shan country north of Mobya, there is a Karen tribe who wear a black dress, and are hence denominated Black Karens.

PANDUNG.

A Shan priest, that I met in the Red Karen country, described to me a tribe of Karens, who wear the tunic, that are called by the Shans Pandung.

TOUNG-YO.

In the interior of the country east of Ava, the water shed is inhabited by Karens called Toung-yo-tha, or "Sons of the mountain range." They are described as very barbarous.

Miscellaneous Tribes.

KAKHYENS.

The Kakhyens were first brought to notice by Capt. Hanny. "He found Koungtoun, a few miles below Bamo, surrounded by a double palisade of bamboos with sharp stakes between them, for the protection of the inhabitants against the Kakhyens, a tribe occupying the hills to the east, who frequently come down in small bodies for the purpose of carrying off cattle. Capt. Hannay saw a great number of this tribe at Koungtoun, where they barter their rice and cotton for salt and potted fish, and describes them as with few exceptions, perfect savages in their appearance. Their cast of countenance forms a singular exception to the general rule, for it is not at all Tartar in its shape, but they have on the contrary long faces and straight noses, with a very disagreeable expression about the eyes, which was rendered still more so by their lanky black hair being brought over the forehead so as entirely to cover it, and than cut straight across on a line with the eyebrows." Mr. Kincaid gave a much more favorable account of the people, and represented them as a tribe of Karens; but he afterwards identified them with the Singphos, whose language is cognate with the Burman and Tibetan, and farther removed from the Karen than the Shan, so that it is difficult to make out any connection between the Karens and Kakhyens, more than there is between the Karens and Nagas, and the other uncivilized tribes on the southern declivities of the Himalaya. Mr. Kincaid wrote: "I should observe here that all the tribes north of Mogoung are called by the Burmans and Shans Thingbau. By the Siamese they are called Singphos, and Thing-bau is the same name Burmanized. But in reality they are Kakhyens, and therefore the Shans and Burmans frequently call them Thing-bau Kakhyens. Their language is radically the same; the dress, customs and manners are the same." Mr. Robinson, of Assam, says of the Singphos: "Their language is common to numerous tribes occupying all the northern portions of the Burmese empire. About one fourth of its vocables are allied to the Burmese, and an equal proportion to the dialect of Manipur. Its intonations are similar to those of its cognate, the Burmese, and its grammatical construction precisely the same."

Since writing the above I see Capt. Yule says: "The Kakhyens, or Kakoos, as they call themselves, are a wild section of the great race of Singphos, and inhabit hilly tracts on both banks of the Irrawaddy from Bamo upwards. The language of the Ka-

khyens, according to the tables of Mr. Brown, at Suddiya, has only about 17 per cent. of its words similar to the Karen." I think Mr. Brown has not published any specimens of the Kakhyen language as such, and it is possible after all that Kakhyen is not identical with Singpho; and Thing-bau Karen may be used by the Burmese, as they use Talaing Karen, and Burmese Karen, to denote a tribe of Karens connected with the Thing-baus or Singphos. The name, Kakhyen, would seem to indicate that the Burmans regarded them as allied to the Khyens. East of the Kakhyens Col. Macleod found the tribes of Kakuis and Kakuas, which are probably variations of the name Kakoos.

KAMIS.

The Kamis, or Kumis, or Kimi, or Kemees, or Koomwees, or Khumis, are a tribe of Aracan, regarded by both Major Phayre and Capt. Latter as of the Burmese family; but their language shows the relationship to be rather remote. The name *Kami* is their word for man.

KYANS.

The Kyans are a small tribe consisting of a single village in Aracan. Capt. Latter, the only writer who has described them, was in doubt whether to refer them to the Burmese or Bengal type. Their language indicates an affinity with the former.

KOONS.

The Koons, or Khōns, are a tribe at the head waters of the Kola-dan river, beyond the Aracanese boundary, of which little more is known than the name. *Khoung* signifies man in Siamese.

SAK.

"This is a very small tribe," says Phayre, "mentioned by Buchanan. He calls them *Thoĕk*, that being the Burmese pronunciation of the word, and states that they are the people inhabiting the eastern branch of the Nauf river, in Aracan, and are called by the Bengalis *Chatu* and Chatumas. *Chatu* is no doubt meant for *Sak*, which is the name these people now give themselves."

MRU.

This is a tribe in Aracan of which nothing is on record beyond a few brief notices by Maj. Phayre.* "They are now much reduced," he says, "from their ancient state. They once dwelt on the river Kuladon, and its feeders, but have been gradually driven out by the Kami tribe. They have therefore emigrated to the west, and occupy hills on the border between Aracan and Chittagong. The history of the Aracanese kings refers to this

* Journal A. S. Bengal, No. 1, 1853.

tribe as already in the country when the Myam-ma race entered it. It states also that one of this tribe was chosen king of Aracan about the fourteenth century of the christian era. The traditions recorded in the same work also imply that the Mru and Myam-ma races are of the same lineage."

SHENDOOS.

The Shendoos, or as they call themselves, *Heuma*, have been described by Capt. Tickell,* as inhabiting the mountains north of Aracan. Their affinities are with the tribes west of Burmah.

SELUNGS.

The Selungs, or Salones, are a small tribe inhabiting the islands of the Mergui Archipelago; and were probably known, by report, to the Greek geographers as Ichthyophagi, or fish-eaters, a name to which they are fully entitled to the present time. I once met a large party beneath some casuarinas in a sandy cove fifteen miles south of Tavoy Point, but they are rarely seen so far north. Their history is soon written, for it contains only "the short and simple annals of the poor;" a history of unvaried poverty and unmitigated wretchedness.

Nothing more was heard of them for a dozen years till Capt. McLeod, in civil charge at Mergui, having made repeated visits to their islands, and feeling interested in the people, drew the Rev. Mr. Kincaid's attention to them. This gentleman made a tour in their Archipelago, and writing from their midst in 1838, he observed: "The scenery is uncommonly fine and picturesque. The ocean on every side, spotted with a thousand green islands and islets, all densely wooded, and of all sizes and forms. Some low and very level, others with bold rocky shores, rising into mountain ridges. The climate too, must be delightfully pleasant. One cannot help exclaiming, 'this is a beautiful world,' —'man alone is vile.' Those modern infidels who dream of perfection, if they can only wipe out all system of religion, might find here a splendid field all cultivated to their hands. I am now surrounded by about three hundred souls, men, women and children, entirely free from all religion. They have no God, no temple, no priest, no liturgy, no holy day, and no prayers. In their domestic habits they are free from all conventional rules. They are very poor, too, having no houses, no gardens, no cultivated fields, nor any domestic animals, but dogs. I never saw such abject poverty, such an entire destitution of all the comforts of life."

Five or six years subsequent to Mr. Kincaid's visit, the Rev. Mr. Wade directed the attention of the public to the Selungs.

* Journal A. S. Bengal, No. 3, 1852.

Writing from Mergui, while the Commissioner, Major Broadfoot, was there, he says: "I will here record the kindness of our Commissioner to the poor Selungs, a race of people dwelling on the islands between Mergui and Penang, far below the Karens in knowledge and civilization, despised, abused, and robbed by Chinese, Malays, and all the surrounding tribes; whose only means of livelihood is fishing, and fabricating a species of mats. The Comissioner gave them a supply of rice, did every thing in his power to inspire them with confidence, particularly with the view of inducing them to learn to read, and gave a thousand rupees from his own purse, to aid in reducing their language to writing and in the establishment of schools among them."

The Rev. Mr. Brayton subsequently paid considerable attention to their language; the Rev. Mr. Stevens, while on a visit to Mergui, reduced it to writing; and while Captain H. M. Durand held the Commissionership of these Provinces, he also felt a deep interest in the welfare of the people, as is proved by the following interesting communication to government from his pen in 1846.

"When proceeding from Mergui to the Pakchan, I gave permission to the Rev. Mr. Brayton, of the American Baptist Mission, to embark on board the H. Co's Steamer 'Proserpine,' and on passing the Island of Lampee, he was landed in Marble Island Bay.

The object of this gentleman's visit to the island of Lampee was of a purely missionary character, with reference to the Salones; and I took advantage of his visit to request that he would have the goodness to assemble as many of the Salones as could conveniently be brought together, in order that on the return of the steamer I might have an opportunity of communicating with them.

On my return from the Pakchan to Marble Island Bay, I found forty Salone boats assembled. Each boat was said to contain on an average ten individuals, men, women and children. The boats were excellent, and the appearance of the people neither so savage nor miserable as from their mode of life might have been anticipated. They were decently clad, and seemed not at all deficient in intelligence. The humane exertions of my predecessor to induce these people to enter upon a more civilized mode of life, and to attempt cultivation, and the formation of villages failed; but encouraged by the example of a Salone family from one of the islands to the southward of our territories, the Lampee Salones are now meditating the establishment of two small villages, one of six, and another five houses. The Salone who has set the example has cultivated between two and three acres. The family state that the islands to the southward of the British territories are frequented by Salones in greater numbers than those in the Mergui Archipelago, and that some of the southern

Salones have taken to cultivation, and form permanent villages. The language is the same with that of the Salones of the Mergui Archipelago.

Although the exertions of my predecessor failed in one respect, his liberality and the application of Mr. Brayton have succeeded in another, and a very important particular. Mr. Brayton having acquired some knowledge of the Salone language, has taught several of them to read, and there is every probability of his Salone school being increased during the approaching rains. I forward three copies of the first Salone work, a small primer.

One of my objects in assembling the Lampee Salones was to ascertain whether they had during this dry season been visited by Malay boats, their great dread. I was happy to learn that these timid unresisting people had during the dry season been free from molestation, and carried on their sea slug collections undisturbed and successfully.

Formerly the Salones paid a tax to government of three rupees a boat, but the tax was discontinued by my predecessor, and I have not imposed any new one upon them, nor do I intend it. Their sea slug collection is not unproductive, the slug selling at the rate of 30 to the rupee; but with the exception of a few mats, the making of which is the S. W. monsoon occupation, the slug forms their only wealth; it is caught or rather dug up, during the N. E. monsoon, at the period of low water in spring tides, and it is from the value of this article in the Mergui market that they obtain the means of purchasing rice, salt, and clothes. Their food is rice, fish, and shell-fish; a few hogs are also caught and killed by the aid of their numerous dogs, and some of the Lampee Salones had fowls with them. When, as frequently occurs, the Salones have expended their rice, they have resort to a wild root which grows in abundance, and which, after much maceration in water, parts with its poisonous matter and becomes safe and edible.

I have no means of ascertaining or estimating the number of Salones in the Mergui Archipelago. Any guess must be a very random one. At Lampee, a favorite Salone place of resort, I suppose that instead of forty, with timely warning, nearly one hundred boats might have been assembled, but it is their best frequented place of wandering. What the forests are to the Karens, the sea and the coasts of the islands of the Mergui Archipelago are to the Salones. The latter having boats, dispense with houses altogether, and are therefore still more migratory in their habits than the Karens. These are habits which it will require much time and favouring circumstances to break."

An examination of a small vocabulary of Selung words, collected by Mr. Brayton, proves conclusively that the language is of the Malay family, though differing considerably from the Malay proper. It is not a little singular to find a people living

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on the islands around these Provinces, with many of the habits, and much of the character of the South Sea Islanders, and speaking a branch of the very same language; for it is well known that the Malay, in some of its dialects, is the language of nearly all the islands on the sea-board from Madagascar round eastward to the borders of America. From Monsieur Barbe's specimens of the language of the Nicobarians, it would appear that they do not enter into this family, and as might be expected, the specimens that Symes gives of the language of the Andaman islands, shows that they are in no way related to the Selungs. Could we compare the language of the inhabitants of the Andamans with that of the negro tribes inhabiting the interior of Malacca and the islands, we might not improbably find as much resemblance between them as we do between the languages of the Selungs and Malays.

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CHAPTER V.

Demonology and Budhism.

DEMONOLOGY.

When Thales taught that the whole universe is pervaded by spirits, he proclaimed both the primitive and the existing faith of all India and China. Budhism, and Brahminism, and Mohamedanism, have been engrafted on this ancient belief. They are not recognized as objects of worship, but the people are in the constant habit of offering them food; for they are regarded as they were by the western nations of antiquity, as possessed with spiritual bodies, requiring spiritual food. The wild tribes, which have not received the religion of Gaudama, are as strong in this primitive faith as were the inhabitants of early Greece. Not only has every human being a guardian spirit, but every conspicuous object, and every article of utility. The rice which the forester plants, and the axe with which he fells the trees, has each its guardian spirit; but the most powerful ones, those which inspire the most awe, are the spirits of the foaming cataract, the hoary headed precipice, the gloomy forest, and the cloud-clad mountain. We call them demons, but they are demons only in the signification that the Greeks used the word. They are not deemed naturally malicious, but owing to the obtuseness of human vision, the incautious traveller may step on one of these superior beings, as he reclines beneath the tree he watches, or sits on the fern-browed and lichen-covered rocks he protects. Then is his wrath aroused, and he smites the transgressor, as the angel of the Lord did Herod, with sickness and death. They are not thought to be gods, but subordinate beings to some greater power, whose ministers they are, and with whom men have to do; while the supreme Ruler can be approached only by his servants. After man had beendriven out of the presence of God by the angel with his flaming sword, it is not remarkable he should adopt this belief. It looks like the first form of error that sprung up in the human mind; the first weed out of Paradise.

The Karens believe that every object of nature has its lord, or god in the language of the mythologies; as the god of the sun, the god of the moon, the god of the earth, and the god of the ocean. Some correspond to the Oreades, the deities of mountains; others to the Dryades, the divinities of the woods; and others to the Naiades, who presided over streams. These divinities are supposed to reside near the objects over which they preside. The god of a tree under the tree which he protects, the god of a mountain on the mountain in his charge, and the god of the waters in the particular stream to which he belongs. These beings are regarded as coëxistent with the objects they watch. "The waters have their lord," writes a Karen, "the lands have their lord, the mountains have their lord, the trees have their lord, the bamboos have their lord, the peepuls have their lord, the precipices have their lord, the seas have their lords; every individual thing has its lord; without its lord, nothing could come into existence." Offerings are made to the god of the earth annually, in the middle of the dry season, when the villagers make a feast, and many drink to intoxication. Though devoted ostensibly to the god of the earth, the prayers on the occasion show that all the principal divinities are intended to be propitiated at the same time.

Before making the offerings, a small bamboo house is built in a grove. Seven small fish, a species of bream, are then roasted with powdered tumeric; and these, with seven mouthfuls of betel and seven plantains, are placed in the house. Seven wax candles are next erected and lighted. This is the offering of one class of Karens; but another, instead of the fish, sacrifice a cock and a hen before the little temple, by cutting off the head. The blood is made to drop by the steps of the house, and a part is rubbed on the posts of the doors. The fowls are cooked, and after being put into the house, water is poured out slowly on the ground with the following prayer: "God of the earth, god of the land, god of the waters, god of the sun, god of the moon, god of the trees, god of Mount Thauthip! [one of the principal mountains in Toungoo] Come, come, I will feed you with delicious fowls, fat hens, a cock and a hen. We who dwell on this stream, in this land, with our dependents, great and small; may our skins be cool, our flesh comfortable. O lords! put forth your hands, I will wash your hands [pouring out water.] Eat, my lords, eat."

These gods are supposed to have an innumerable quantity of servants or soldiers in their service, scattered through the forests, smoking gold or silver-stemmed pipes, and armed with swords to smite transgressors. These dependents are thought to be the departed spirits of persons who have died violent deaths. At the close of the annual offering to the god of the earth, a part of the food is scattered to the four winds for these beings. Separate offerings are also made to them. Sometimes on the

ground, and sometimes a small bamboo house or temple is built for them under a shady tree, or in a gloomy grove, or on a dangerous precipice. When the offerer brings his oblation, he prays: "You who died wretched, that wild beasts devoured, or were struck by lightning! Please loose the bands with which you have bound the person who has accidentally stepped against your sword, or spear, or pipe, that he may be freed from pains in the back, pains in the side, pains in the liver, or pains in the heart. We are poor blind people that cannot see you, as you see us. Please turn yourselves away from us."

To man is awarded a guardian spirit, whose seat is on the head or the back of the neck. Its name is the common word for power, and it is that which gives power to man. So long as it remains at its post, the tigers and wild beasts stand in awe, and sickness dare not approach; but when it leaps down, some evil befalls the man, and he sickens and dies, unless the guardian spirit returns; for seven other spirits attend him throughout life, who pledged themselves in the presence of God, before his birth, to kill him. The first said: "He shall die by the mouth of a tiger." The second: "Should he escape death from the tiger, he shall die by sickness." The third: "If he recovers from sickness, he shall be drowned." The fourth: "If he escapes drowning, he shall die by the hand of man." The fifth: "Should he not be slain, he shall fall down and kill himself" The sixth: "Should he not die of his fall, he shall die by coming in contact with something." The seventh: "If he dies of nothing else, he shall die because he has reached his allotted period of life."

These spirits, though seven, are usually treated as one, and its presence is deemed necessary to man's active and healthy existence. In sleep it wanders about, and what it sees are denominated dreams. Often, in its wanderings, it is induced by force, or solicitation from other spirits, to stay away from home; and then the person feels himself more or less unwell, and the absent spirit is called back with an offering of food, in the following language: "Come! come! Follow not an evil thing, follow not Satan, follow not the king of hades, lest thou comest into trouble. Come when I seek thee, come when I call thee. Come, come and dwell in the house. Come, dwell in the family. Come with thy power, come with thy influence, come and dwell at home."

This spirit is called *la*, and *la* is also fate. In Chinese *lə* is fate, and also spirit or mind; and I am inclined to think the words of common origin.

The Burmese have similar ideas of a guardian spirit to those possessed by the Karens; but they call it *leik-bya*,[1] or butterfly, and say that at death it escapes from man in the form of a butterfly. This is precisely what the Greeks said of the Psyche.

[1] လိပ်ပြာ

"Among the ancients, when a man expired, a butterfly appeared fluttering above, as if rising from the mouth of the deceased." That the Greeks and the Burmese have here drawn from a common origin, is placed beyond doubt.

It is a popular notion in England that persons who die violent deaths haunt the places where they were killed; and the same belief prevails in Burmah. Hence when the gates of the new city of Tavoy were erected, some eighty years ago, an eye witness told me, a criminal was put into each post hole, and the massive posts thrown in upon him so that his blood gushed up at the sides. This dead man's spirit is supposed to become a *Nat* that will hover around the post, inflicting evil on all who come near and give him offence; and in this contribute to the defence of the gate.

It is on this principle that the images of Nats and men-eating monsters are placed in, and around sacred Budhist enclosures. They are placed there not as objects of worship, but as the representatives of the beings which have the charge of the sacred relics enshrined, and which will inflict punishment on any attempt at sacrilege.

The Karens are strong believers in what is now denominated spiritualism, but which was anciently called necromancy. They believe that the spirits of the dead are ever abroad on the earth.

The Karens believe that the spirits of the dead are ever abroad on the earth. "Children and grandchildren!" said the Elders, "the dead are among us. Nothing separates us from them but a white veil. They are here, but we see them not." Other genera of spiritual beings are supposd to dwell also on earth; and a few gifted ones, *mediums*, in modern language, have eyes to see into the spiritual world, and power to hold converse with particular spirits. One man told my assistant—he professed to believe in Christianity, but was not a member of the church—that when going to Matah on a certain occasion, he saw on the way a company of evil spirits encamped in booths. The next year, when he passed the same way, he found they had built a village, at their former encampment. They had a chief over them, and he had built himself a house, larger than the rest, precisely on the model of the teacher's without, but within divided by seven white curtains into as many apartments. The whole village was encircled by a *cheval de frise* of dead men's bones. At another time, he saw an evil spirit that had built a dwelling near the chapel at Matah, and was engaged with a company of dependents in planting pointed stakes of dead men's bones all around it. The man called out to the spirit: "What do you mean by setting down so many stakes here?" The spirit was silent, but he made his followers pull up a part of the stakes.

Another individual had a familiar spirit that he consulted, and with which he conversed; but on hearing the gospel he professed to become converted and had no more communication with his spirit. It had left him, he said; it spoke to him no more. After a protracted trial, I baptized him. I watched his case with interest, and for several years he led an unimpeachable Christian life; but on losing his religious zeal, and disagreeing with some of the church members, he removed to a distant village, where he could not attend the services of the Sabbath; and it was soon after reported, that he had communications with his familiar spirit again. I sent a native preacher to visit him. The man said he heard the voice which had conversed with him formerly, but it spoke very differently. Its language was exceedingly pleasant to hear, and produced great brokenness of heart. It said: "Love each other. Act righteously, act uprightly," with other exhortations such as he had heard from the teachers. An assistant was placed in the village near him, when the spirit left him again, and ever since he has maintained the character of a consistent Christian.

Several years ago, while preaching in a grove near a village of heathen Pwos, a man fell down in the midst of the sermon, in what I thought to be an epileptic fit; but after the service, I was told the man was not sick, but had a familiar spirit, and that the spirit had come upon him to forbid all the people to listen to me, for I preached falsehood. I visited him while under the influence of the spirit, and heard him sing out his denunciations against those that should receive the gospel, like one half frantic, while his wife stood over him with a light, for it was said he would die if left without one. The man was subsequently converted, became a useful assistant, and was ordained and settled over a church within the last two or three years. He told me he could not account for his former exercises, but that it certainly appeared to him as if a spirit spoke, and he must tell what was communicated. He has not, so far as I am aware, had any communication with the unseen world, since he first professed faith in Christ.

The principal use to which spiritualism is applied among the Karens, is to cure diseases. When a person is sick, he sends to one of the *mediums*, to know the cause of the disease, and the method of cure. Sometimes he is told the complaint is produced by witchcraft. One man, who was said to be suffering from witchcraft, was brought to Tavoy, and the missionaries obtained for him the best medical aid, but he died. His disease was water in the cavity of the viscera, and to convince the Karens that the man died from natural causes, they were called in to the *post mortem* examination. When they saw the water, they said; "Before, we only suspected it, but now we know he died from witchcraft, for there is the water that was put into him by enchantment!" Some may smile at the obtuseness of the Karens,

but I have met with people at home of a like mental capacity, when endeavoring to correct their views of missionary matters. Logic goes for nothing, and facts for very little, when people do not *wish* to be convinced.

The Karens believe that a witch has power to put any substance that she sets before her, as a bit of glass, or stone, or iron, or a piece of flesh, or a cup of water, into the body of another, however distant that person may be, and thus produce a disease that shall end in death. In one instance that came to my knowledge, the wizard was pointed out, and two of the friends of the sick went and killed him in open day. Sometimes the *medium* says the disease is produced by the spirits of the deceased parents, and they must be propitiated by the whole family being called together from their scattered homes, however distant, and a sacrifice offered to the manes. At other times the disease is attributed to the guardian spirits of the forest or mountains, the the rocks or the rivers, to whom bloodless offerings are directed to be made.

Karen spiritualism often shows itself in the importance the people attach to dreams. In the early years of my missionary life, the Karens would frequently come to me with their remarkable dreams, to which they attributed great importance; but the mode of interpretation I pursued, soon relieved me of that annoyance. Since resigning the editorial charge of the Karen periodical, I have observed one of these dreams in its columns, in a letter from an assistant. He writes that one of the Christians in the church of his charge dreamed: "He saw a person like a teacher, with golden-ruby cylinders in the lobes of his ears, and robed in glorious clothing, who said to him; 'I am an angel of heaven, and have come down from heaven, because the Christians here are not united. I come to communicate to them this stanza of a hymn:

'The great house post, united together we erect;
Let the branches be united, the leaves united.
By combination we set up the great house post;
Let the branches go together, the leaves together.
The great house post has a shadow [*i. e.* it is a figure,]
Sing up in health and prosperity.

'Before you go up into the meeting-house to worship,' continued the angel, 'sing these three couplets, and then go in. If you sing these three couplets at the foot of the meeting-house steps, and then go up to meeting, you will afterwards live in harmony with each other. Tell this to all the disciples." The assistant writes to know whether the dream be good or bad. It will be readily seen, that if we give place in the slightest degree to this spiritualism, we shall soon have to neglect the teaching of the bible altogether. It will be superseded by new revelations; the result to which spiritualists in America have already arrived.

Mr. Van Meter writing, in a recent communication from Bassein, of the irregularities in the church, says: "The most serious case is in a strong tendency of a formerly substantial church member to the views and practices of the 'spiritualists.' He pretends that communications are made to him by angels, and especially by Tway Poh, his former pastor, who died in 1853." It is no new thing with the Karens, but one of their old errors; and the most difficult to eradicate that I ever had to grapple among them.

"Spiritualism," writes Mr. Knowlton, "appears to be no new thing in China. I was informed of a woman in Chusan, who will cause things to move about the room, or to be thrown upon persons she dislikes; and who will light candles without having any apparent connection with them. A man also visited me a short time since from a place in the interior, about eighty miles from Ningpo, who said he was from a company of persons who are followers of a man who will write without exercising his own will at all. He is supposed by his followers to possess the spirit of a deceased person; and that this person makes communications through his hand which mortals in this life cannot know. They have left the established religions and formed a society of their own, and built a temple quite unlike the heathen temples, where some three hundred worship.

There is nothing in these views of the spirit world peculiar to the Karens. Much is common to the demonology of the Chinese, and with unimportant variations, the whole may be traced in the Greek and Roman mythologies. Socrates with his good and bad demon, sacrificing a cock to Esculapius, would be regarded as very orthodox by the heathen Karens; but Greece on the West, and Burmah on the East, have undoubtedly derived their systems from a common origin in Central Asia; the birthplace of both truth and error, as well as of Ormuzd and Ahriman.

Feticism, or making offerings to stones, holds a prominent place among the Bghais, though rarely found among the southern Karens. The play of colours seen in a precious stone, they deem the movements of the spirit that inhabits it. Every house among the Bghais has one or more stones as its household gods, to which blood offerings are occasionally made. When asked "why?" the reply is, "if we do not give it blood to eat, it will eat us." There are two classes of stones, one of which are called "Paddy stones," and offerings are made to them to obtain a good crop; and I find in an account of the Loochoo kingdom, just published, that the people there worship stones to propitiate the gods of grain," so the practice probably came to the Karens by the way of China. Other stones are preserved because they are supposed to be animated by benevolent spirits, which sometimes prove to be evil ones. "When my father died," says a young man writing at my side," my mother said the stone we had in our family was not good, and bid me throw it away, which I

did; but it had power to come back again, for in a few weeks it was found in its old place, with two other small ones with it." The stones are of all descriptions—garnets, rock crystal, chalcedony, cornelian, agate, onyx, and I have seen large boulders of alternate thin layers of clayslate and sandstone exalted to the divinity.

Among all the Karen tribes, I find stories exist which are told from father to son, some of which I fancy are of Hindu origin. They call them *poos*, which may be the same word as *poorana*, the Hindu name of these myths. For example, God, or Yuwa, says one story, had a brother called Segu, in one dialect, Shiewu in another, and from a third tribe I learn, what the others did not know, that this Shiewu has an extra eye in his forehead. This proves that Siva is intended. After Yuwa had created the world he and his brother agreed to walk around it. Each one started in opposite directions, but when they met on the opposite side of the earth they did not know each other, and a fight ensued. Yuwa proving too strong for his antagonist, Siewu was thrown under the earth and condemned to bear it on his shoulder, as Atlas is depicted in our mythologies. When one shoulder is tired, he shifts it to the other, and hence the cause of earthquakes.

BUDHISM.

"All things are unreal." This the Budhists propound as an axiom, and on it, all their philosophy is based. They have no term with which to properly designate matter. *Rupa*, form, or appearance, which includes matter, and is often equivalent to it in our usage of the word, embraces everything that is cognizable to the senses, including organized as well as unorganized matter, without distinction. It is treated as a unity, and the nearest English word, with which it can be appropriately rendered, is *idea*. Its origin is attributed to the consciousness, and is therefore wholly subjective, having no objective existence whatever.

Twenty-eight principal ideas are enumerated as including all other ideas. Five are the ideas of earth, of water, of fire, of air, and of space. Five are the ideas of the organs of sense—seeing, hearing, smelling, tasting, and feeling. Five more are the ideas of the external objects of the senses—visibility, sound, odor, flavor, and tangibility. Two are the ideas of womanhood and manhood. Three are the ideas of speech, of giving and receiving information through gestures and bodily impressions, and of vitality. Eight more, which complete the whole, are the ideas of division, of aggregation, of extension, of hardness and softness, of heaviness and lightness, of a capability for various purposes, of decay, and of impermanency. All things are supposed to be included in these ideas, visible and invisible, human and divine. Their existence is the present world, their absence Nigban. In

dreams. man does and suffers as when awake, and thinks all real, but he awakes and finds the whole a delusion. So life is another stratum of dreams, below which is the great primitive nucleus of Nigban—the grand reality, the true waking state in which man discovers that life is as unreal as a juggler's trick.

Conciousness, in which these ideas originate, is characterized as "that which knows perceptions and conception," and consists of eighty-nine diff rent states or minds. The mind is represented as sitting supreme, and receiving reports from the organs of the senses—perceptions of sight, from the faculty of seeing; of sound from the hearing; of odor, from the smelling; of flavor, from the taste; of contact, from the feeling; and conceptions of things thought on, from the intellect, which holds, in the system, the place of a sixth sense.

These eighty-nine minds, or states of the consciousness, are divided into four classes. Those influenced by passion, those influenced by ideas or external objects, and those influenced by a desire of deliverance from all sublunary things, corresponding to heavenly-mindedness in the Christian system. All wicked minds are contained in the first class, and the most important of the virtuous minds are found in the last class. A person with the latter state of the consciousness, possesses the eight characteristics of the way to deliverance. He has right opinions, right intentions, right language, right actions, supports life in a right way, has a right dilligence, a right caution, and maintains right doctrines with imperturbation. In these spiritual minds, there is exemption from doubt. Nothing is more essential to practical Budhism than faith. Some measure of passion and worldly-mindedness is compatible with the existence of this higher state, but implicit confidence in the truth of the system cannot be dispensed with.

The cause of consciousness is said to be conception, which owes its existence to delusion, or ignoranc, the primary cause of all things, while the effect of consciousnesss is idea, perception, contact, sensation and desire. Fifty-two emotions, and what we denominate intellectual faculties, are enumerated under one caption, which are attributed to combined influence of conception and sensation. Fourteen of these are characterized as emotions destitute of virtue, and are ignorance, folly or sin, shamelessness in sin, fearlessness in sin, disquietude of mind, desire or covetousness, erroneous belief, pride, anger, envy, anxiety, sluggishness of intellect, sluggish affections, doubt and selfishness. Nineteen are denominated approved emotions, which are complacency in righteousness, circumspection, shame of sin, fear of sin or conscience, as some understand the term, freedom from covetousness, freedom from anger, equanimity, tranquility of the affections, tranquility of mind, tenderness of the affections, tenderness of mind, meekness of the affections, meekness of mind,

fitness of the affections, fitness of mind, correct habits of the affections, correct habits of mind, rectitude of the affections, and rectitude of mind. Three are denoted emotions of rest, inclinations for good words,' for good deeds, for supporting life on right principles. Two embrace love to others, favor or mercy, and rejoicing in others' prosperity. As ignorance is synonymous with sin, and the parent of all evil; so knowledge is placed at the head of virtuous emotions, as the source of the whole.

The remaining thirteen are intellectual faculties, and are in the order enumerated: contact, sensation, perception, inclination, purpose, faculty for living, reflection, thought, reason, judgment resolution, delight and will.

The philosophy of Budhism is the religion of Budhism. The long stolid cosmogonies, that have been so often put forth for the Budhist religion, are no more Budhism than geography is theology. Two are taught in the books, differing from each other as much as the Ptolemaic system of astronomy differs from the Copernican; but the essential doctrines of Budhism are no more affected by them, than Christianity is by the conflicting theories of geologists. A few reject the worship of idols altogether, yet they are as strong Budhists as the most zealous idolators. To be a Budhist, is to believe in the philosophy of being, as indicated in the preceding paragraphs, that true happines is not found in any state of body or mind, that existence is a calamity, and that the only desirable object is the extinction of being, or Nigban, where there is deliverance from ideas and consciousness. To be a pious Budhist, is, in accordance with this belief, to remain unaffected by the objects with which he is surrounded, to deny himself everything that indulgent nature craves beyond the bare necessaries of life, and to cry out day and night: "All things are transitory, productive of unhappiness, and unreal;" or in the language of Coheleth: "Vanity of vanities, vanity of vanities, all is vanity."

A change of heart is as essential to salvation in Buddhism, as in Christianity, and since the change is usually produced under the preaching of a Budha, whenever the Budhist prays, he prays that he may meet with a Budha in the future transmigrations. Gaudama is represented in the books as a very powerful preacher, great numbers being converted to Rahandas, or perfected saints certain of going to Nigban, under his discourses. His most famous sermon, and the only complete one I find on record, is one preached at Gaya, in Magudha, on "a flat rock at the top of a hill, which resembles the canopy of an elephant's howdah." "The little mountain of the isolated rock," mentioned by Fabian, the Chinese traveler in the fourth century, was probably the same place. It was addressed to one thousand mendicant friars, all of whom were converted to Rahandas, at its close. It is written in Pali verse, and not being, either in matter or manner,

on the model of modern sermonizing, a literal translation is here given, to show what preaching was in India in the days of Daniel.

Mendicants! All burn.
And what all, Mendicants?
The eye burns, form burns,
The faculty of seeing burns,
The contact of visible impressions burns,
Every cause which produces contact with the eye,
Whether pain or pleasure,
A painless or a pleasureless sensation be produced,
That also burns.
By what does it burn?
By the fire of desire, by the fire of transgression,
By the fire of folly, it burns;
By birth, by age, by death,
By apprehension, by lamentation,
By pain, by mental anguish,
By the infirmities of age, it burns.

The ear burns, sound burns,
The faculty of hearing burns,
The contact of audible impressions burns,
Every cause which produces contact with the ear,
Whether pain or pleasure,
A painless or a pleasureble sensation be produced,
That also burns.
By what does it burn?
By the fire of desire, by the fire of transgression,
By the fire of folly, it burns:
By birth, by age, by death,
By apprehension, by lamentation,
By pain, by mental anguish,
By the infirmities of age, it burns.

The nose burns, odor burns,
The faculty of smelling burns,
The contact of impressions of odor burns,
Every cause which produces contact with the nose,
Whether pain, or pleasure,
A painless or a pleasureless sensation be produced,
That also burns.
By what does it burn?
By the fire of desire, by the fire of transgression,
By the fire of folly, it burns:
By birth, by age, by death,
By apprehension, by lamentation,
By pain, by mental anguish,
By the infirmities of age, it burns.

The tongue burns, flavor burns,
The faculty of tasting burns,
The contact of impressions of flavor burns,
Every cause which produces contact with the tongue,
Whether pain, or pleasure,
A painless or a pleasureless sensation be produced,
That also burns.

By what does it burn?
By the fire of desire, by the fire of transgression,
By the fire of folly, it burns:
By birth, by age, by death,
By apprehension, by lamentation,
By pain, by mental anguish,
By the infirmities of age, it burns.

The body burns, tangibility burns,
The faculty of feeling burns,
The contact of tangible impressions burns,
Every cause which produces contact with the body,
Whether pain, or pleasure,
A painless or a pleasureless sensation be produced,
That also burns.

By what does it burn?
By the fire of desire, by the fire of transgression,
By the fire of folly, it burns:
By birth, by age, by death,
By apprehension, by lamentation,
By pain, by mental anguish,
By the infirmities of age, it burns.

The intellect burns, the objects of the intellect burn,
The faculty of thinking burns,
The contact of mental impressions burns,
Every cause which produces contact with the intellect,
Whether pain, or pleasure,
A painless or a pleasureless sensation be produced,
That also burns.

By what does it burn?
By the fire of desire, by the fire of transgression,
By the fire of folly, it burns:
By birth, by age, by death,
By apprehension, by lamentation,
By pain, by mental anguish,
By the infirmities of age, it burns.

Mendicants! By this, the young saint,
Under the influence of perception,
Is imperturbable in the eye,
Is imperturbable in the presence of form,
Is imperturbable in seeing,
Is imperturbable under the contact of visional impressions:
Any cause which produces contact with the eye,
Whether pain, or pleasure,
A painless or a pleasureless sensation be produced,
In that also, he is imperturbable.

He is imperturbable in the ear,
He is imperturbable in sound,
He is imperturbable in hearing,
He is imperturbable under the contact of audible impressions:
Any cause which produces contact with the ear,
Whether pain, or pleasure,
A painless or a pleasureless sensation be produced,
In that also, he is imperturbable.

He is imperturbable in the nose,
He is imperturbable in odor,
He is imperturbable in smelling,
He is imperturbable under the contact of impressions of odor:
Any cause which produces contact with the nose,
Whether pain, or pleasure,
A painless or a pleasureless sensation be produced,
In that also, he is imperturbable.

He is imperturbable in the tongue,
He is imperturbable in flavor,
He is imperturbable in tasting,
He is imperturbable under the contact of impressions of flavor:
Any cause which produces contact with the tongue,
Whether pain or pleasure,
A painless or a pleasureless sensation be produced,
In that also he is imperturbable.

He is imperturbable in the body,
He is imperturbable in tangibility,
He is imperturbable in feeling,
He is imperturbable under the contact of bodily impressions:
Any cause which produces contact with the body,
Whether pain, or pleasure,
A painless or a pleasureless sensation be produced,
In that also, he is imperturbable.

He is imperturbable in the intellect,
He is imperturbable in the objects of intellect,
He is imperturbable in thinking,
He is imperturbable under the contact of mental impressions:
Any cause which produces contact with the intellect,
Whether pain, or pleasure,
A painless or a pleasureless sensation be produced,
In that also, he is imperturbable.

Being imperturbable, there is no desire,
Being no passion, there is freedom from sin,
He is beatified into beatitude.
There is knowledge:
Births are exhausted,
Religious duties are completed,
What ought to be done is finished,
Nothing more remains."

Glossology.

Comparative philology is a science which, judging from its progress during the last half century, is destined to settle the question of the unity of the human race on immutable ground; and to do more for general history than all the books of Europe and the manuscripts of Asia together. Fifty years ago, there was a wide abyss between the western world and India, but comparative philology has become the railway of history, uniting the nations; and Berlin and Benares are proximate neighbors.

A comparison between the etymologies of Johnson and Webster shows something of the progress that has been already achieved, but Webster, though rich in his illustrations from the Arabic, rarely advances beyond the Indus, and never crosses the Brahmaputra. The great English lexicographer of the next century will probably lead the student into the land of Han, and among the Indu-Chinese nations. *Fire* is traced by Webster through the various European tongues; but he might have found equally striking resemblances in China, where it is *fan;* or in Siam, where it is *fai;* or in Pegu, where it is *pmant*; or in Burmah, where it is *mī*; or in the Karen jungle, where it is *me* and *me-ū*. So *name* is, in Chinese, *ming;* in Burman, *nàma* and *nàme;* in Karen, *ming* and *mī;* and in Talaing, *yĕmu*. *Fly* is, in Chinese, *fei;* in Karen, *fu;* in Burman, *pyan;* and in the Tavoy dialect, *plan*. The substantive verb which has *s* for its radical consonant in the Indu-European languages, is *shee*, in Chinese; *shi*, in Burman; and in the Tavoy dialect, *hi*, which allies it with the Pali root *hu*, from which the present and future tenses of the verb *to be* are often formed.

Geology reads lectures on the ancient history of the earth, philology on the ancient religion of its inhabitants. When I look at the strata on which my house is built, I have the natural history of my villa before historic times, and when I examine the roots of my vernacular tongue, I have a treatise on theology written by my ancestors, it may be before the art of writing had been discovered.

The village churchyard is denominated a *cemetery*. On examination, I find this word signifies a sleeping-place, and that it could have been adopted only with the belief that the dead sleep to wake to life again. The history of the word shows that it cannot be traced back beyond the Christian era, nor among nations that have not embraced Christianity. The inference, then, is legitimate, that my ancestors, when they adopted the word, held Christian views in relation to the state of the dead.

When the Jews say *adam*, designating man or mankind in general, Adam, the first man, with his formation by God from the dust of the ground is suggested. When the Sanskrit and Pali-speaking tribes of India say *manu sha*, a common term for man, the word they use proves that they regard men as the descendants of Manu, for Manu is a proper name, and sha a particle affixed to form patronimics. The word, whenever uttered, suggests not the true history of creation, as Adam does, but the fable in the Pali and Sanskrit books connected with Manu. This myth says that Manu was the son of Brahm, through whom he created the world; and again, that he was a pious king before the flood, to whom it was revealed that a deluge would destroy the face of the earth, and who was directed to enter a large vessel that was prepared for him, and into which he was to lead seven saints, together with pairs of all brute animals. It is further stated, that after the flood, he repeated the sacred books to mankind, and gave them that code of laws which still goes by his name, as the laws of Menu, and which are of supreme authority with the natives all over India. This is manifestly a distorted tradition of Noah, who is thus suggested to them as the first of the race, whenever they speak of man. The English word man, is the same as the Hindu word, proving that our ancestors, before the dispersion of nations, had the same faith that the ancient Hindus had. Our word man, is *mensch* in German, nearly identical with the Sanskrit *manusha*, while with our Teutonic ancestors, it was *manu*, precisely the name of the Hindu lawgiver, to whom, according to Tacitus, they ascribed a tradition like the one now found in the Pali and Sanskrit books. Manu, the Teutons said, was the son of God, and he had three sons, identifying him again with Noah, and the god to whom they attributed his parentage, this tradition represented as springing from the earth, which existed before him. These fables, which Roman writers show our fathers believed many centuries before the Christian era, are received truths in Burmah at the present time.

PALI.

When I reached Burmah, and opened the Budhist sacred Pali books, I was astonished to find them abounding in words common to the English language, for at that period, Bopp's researches had not yet risen above the literary horizon. These words, too, I observed, were the roots of the language, not the derivatives, and constituted the most ancient part of the tongue. The inquiry at once arose, whence came this Pali language, which in its original ground-form must have been spoken by my ancestors?

I found that Pali was a dialect of the Sanskrit, which was spoken from the Ganges to the Indus, when Alexander invaded India, three centuries before our era; and that it has been preserved as a dead language in the sacred books of the Budhists, as its nearly

related dialect, the Sanskrit, has been in the Brahminical books. In tracing it back through its dialects, we are led into Cashmere, after leaving the valley of the Ganges to the head waters of the Indus; for the Cashmeree is a branch of the Sanskrit. Westward are Afghanistan and Beloochistan, where dialects of the same tongue are still spoken; while coins of the ancient kings of Bactria, a kingdom north-west of Cabul, with Pali inscriptions, abound in the cabinets of Indian and European numismatologists. The Arabs have pushed their conquest and their language to a considerable extent into Persia, the next country in order; but the Zend and Pehlevi, the ancient languages of Persia and Media beyond, are cognate with Pali and Sanskrit. Knobel says that the identity of the Biblical *Madai*, the son of Japheth, and the classical Mydoi, or Medes, cannot be doubted—"*kann nicht gezweifelt werden.*" Polybius says that the Medes dwelt in the middle of Asia. By Herodotus, and other ancient writers, they are called Arioi, or Arians, a name given to a large family of mankind dwelling at the sources of the Oxus and Araxes, between the head waters of the Tigris and the Indus, with the Caspian Sea to the north, and the Hindoo-kooch on the south-east. To this wide land I trace, by a connected chain, the Pali tongue, without a single broken link, from Burmah; and back from the nineteenth century of the Christian era, to the age before the birth of Peleg—four thousand years ago. But here the track is lost. Though well-marked up to this point, we can proceed no further.

Our next inquiries are concerning our Saxon ancestors; and Knobel makes it very clear that the Saxons derive both their origin and their name from Askenas, the son of Gomer, and grandson of Japheth. Their own traditions made them to have grown up with their first king, Aschanes, by a fountain in a green forest. With this agrees Jewish tradition, which represents Askenas as the father of the German nations. They are traced back by historical tradition, from Germany and Scandinavia, from the Rhine and Danube, into Asia and the regions beyond the Caucasus, to precisely the same localities where we left the Pali speaking tribes. But not quite two-thirds of our language is Saxon. Nearly one-third is of Latin origin, and one-twentieth Greek. It is so well known that these nations and their tongues had their origin in Central Asia, that it is not necessary to more than allude to the fact here. The English language, then, though composed of so many heterogeneous materials from the various European languages, ancient and modern, is really homogeneous, all its parts proceeding from the common language spoken in the family of Japheth, before the dispersion of nations; and to the same source we have traced the Pali and Sanskrit.

Japheth must have spoken a very copious language, having many synonymous words to designate the same thing; but his

children appear to have acquired the habit of using one or two only, neglecting the rest; and different children made a different selection, so that when they separated into clans, the word in use was the only one known to their descendants, and the others became foreign to the language.

Thus Japheth, speaking of the earth, would sometimes say, *ira*, sometimes *dhara*, and sometimes *gau*. The father of the Teutonic tribes adopted *ira*, which assumed ultimately the form of the English *earth*. The ancestor of the Latins used *dhara*, which his descendants modified to *terra;* while the Greeks took *gau*, making it *gai*, or *ge*. So in Chinese and Talaing, earth is *ti*, and in Karen *ghau-kho*. After these words had lived separate strangers to each other for many centuries, not to say thousands of years, radiating as fron a center, the modern English appears, gathers up the fragments at the circumference, and brings them together again; as a convex lens converges the diverging rays of the sun to a focus. The Latin word *terra* has been naturalized in terraqueous, terrestrial, terrace, and other words; while the Greek *ge* is anglicized in geography, geometry, geonastic, and numerous other terms.

This is a single instance from a multitude that might be easily produced. *Manush*, man in English; *nara*, *aner* in Greek; and *vora*, a heroic man, Latin *vir;* all existed, with other synonymes, in the original language, and have all been adopted into English.—In Talaing, man is *mnih;* in Chinese, *nang*, *nyning*, lang; in Karen, *nyau*, *yau*, *ya*, *lau*, and in Burman, *loo*.

Tad is the Celtic word for father, *pater* the Latin. Both exist in Sanskrit and Pali—*tata* or *tat*, and *patara* or *patar;* both have a place in English, as *dad* and *dady*, *pa* and *paternal;* and both are found in Karen, *ta* being used by some of the Bghais, and *pa* by the Sgaus.

Luna is the basis of the name for the moon all over the West, and it is equally so in the East. In Tibetan, the moon is *zla;* in Burmese, *la;* in the Karen, *la;* and in Shan, *lĕu*.

Illustrations may be also drawn from the pronouns *wayan*, *no*, and *amhe*—all signifying we in Sanskrit and Pali, the first dropping the last syllable is the English *we*, and Bghai-Karen *wa;* the second the Latin *nos*, and the third is of common origin with the Greek *hemeis*. *Yuyan* you, *vo* vos, and *tumhe* yumeis, correspond precisely with the preceding, and the first syllable of the latter is the Karen *thu*, you.

The same feature is exhibited by the verbs. The Sanskrit and Pali *ad* is the parent of the English *eat* and the Latin *edo;* while *buja* is identical with the Greek *phago*, which has been brought into English in such compounds as anthropaphagi; and in Karen there are *a* and *aì*, and *ang* related to the first; and in Burmese *cha* allied to the second.

It was a law in the Celtic language to change the initial consonant of a word, when it was a mute, according to the relation it bore to other words, from smooth to aspirate, from aspirate to flat, and from flat to nasal. Thus the word for father was *tad*, or *thad*, or *dad*, or *nhad*; and the word for bread was *pen*, or *phen*, or *ben*, or *mhen*. The same law distinguished different dialects, the change of mute not designating a different relation in the word to other words, but the same relation in different dialects. Thus the Greeks used the smooth mute and said *pur*, the Teutons the aspirate and said *fire*, the Pali and Sanskrit-speaking tribes the flat mute, saying *barhi* or *varhi*, and the Tartar nations the nasal, saying *mi*. Here again these different forms, which have lived apart since the days of Peleg, are many of them brought together in modern English. Thus the smooth mute of *ped* is found in pedestrian, pedestal, and several other words, as well as the aspirate form of foot and its derivatives. So we have the aspirate of *frater* in fraternal and fraternity, as well as the flat mute in *brother*. In like manner there is the nasal of the Pali *gna*, Greek *gnomi*, in the English *know*, and the smooth mute in *ken*, common in English poetry, and in colloquial Scotch.

So the Karen *thenya* has the nasal, and the Burmese *kyuon*, the smooth mute.

It is probable that the same words were heard pronounced with these different mutes in the spoken language on the heights of Iran before the dispersion of the tribes, and that these differences of dialect did not originate with the tribes which adopted them, but were selected from the common language, as we have seen different roots were.

It is manifest that in the common language, there were distinct words corresponding to the Pali and Sanskrit *varhi*, and *agni*; that the ancestors of the Latins selected the latter, and modified it to *ignis*, from which we have ignite and other words; it is highly probable, then, that the various forms of the other word *pur* and *varhi* existed together. This is made the more certain from the usage of living languages in Eastern Asia, where nothing is more common than to find the same word pronounced with different mutes. For instance, the word for a ghost, in Burmese, has often the aspirated mute, and is then pronounced *phouk*, but as frequently it has the flat mute and is pronounced *bhouk*. To be hot is *pu* with the smooth mute, but when the root is repeated, the flat mute is used as *pu-bu*, hot, hot, *i.e.*, very hot. The name of the Burmese is usually pronounced *Bama* with the flat mute, but is written with the nasal *mya-ma*. In this way a multitude of words in the Burmese books are written by different authors with different mutes; and so far as they are concerned, different authors may be said to write in different dialects.

It appears to be a general law in monosyllabic as well as polysyllabic languages, that whenever a change of dialect occurs, there shall be a change of mutes. The changes of Sgau-Karen and Pwo-Karen, in the mutes, are parallel, to a great extent, to those which exist in Latin and Gothic. Thus, father is *pa* in Sgau, with the smooth mute, but *pha* in Pwo with the aspirate, differing like *pater* and *father*. *Sa-k.iu*, with the smooth, is chieftain in Sgau; but *khang*, with the aspirate, in Pwo. Sometimes the Sgau has a flat mute where the Pwo has an aspirate. *Bla* is a bat in Sgau with the flat, but in Pwo it is *phla* with the aspirate. *Die* denotes plants of the cucumber tribe in Sgau, while in Pwo the word takes the form of *htie*, the aspirate for the flat.

The Sanskrit dictionaries contain more than *sixty thousand* words, and this by no means exhausts the language; yet they are all made from *one thousand seven hundred and sixty-five* roots. Most of these are found only in the form of nouns, but, theoretically, each of these roots may be the basis of five kinds of verbs —a primitive, a passive, a causative, a desiderative, and an intensive. The primitive again may have its root modified so as to be conjugated in nine different conjugations; and in different conjugations the signification of the verb is often changed. Thus *bhu* in the first conjugation signifies to *be*, but in the tenth to *think*. Then each verb may be multiplied twenty fold by prefixing twenty different prepositions, each of which changes its signification. Many verbs are found, in actual use, combined with eight, ten, twelve, or more of these prefixes. Thus *bhu*, to be, has twelve, combined in a manner exactly parallel with the use of *sum*, with prepositions in Latin; where we have, *ab*-sum to be absent, *ad*-sum to be present, *de*-sum to be wanting in duty, *pra*-sum to be profitable, *in*-sum to be in, *inter*-sum to be in the midst, *ob*-sum to be against, *præ*-sum to be before, *sub*-sum to be under, *super*-sum to be over, and *pas*-sum to be able. The Sanskrit prefixes often affect the signification of the verb differently; but sometimes they modify it in the same way. Thus the preposition *pra*, corresponding to *pre*, with *bhu*, signifies to preside over, as does *præ*-sum; and with *sam* prefixed, to be possible, like *pas*-sum.

From each root may be formed numerous nouns, as well as verbs, either by modifying the root, or by suffixes, or by both. There are *fourteen* affixes to form patronymics, *four* to form gentiles. *four* to form amplificatives, *eight* to form diminutives, *six* to form abstracts, *thirty-four* in use to form verbals, and *ten* to form nouns of agency. The same root furnishes also various adjectives. There are *twenty-three* affixes to form adjectives from the verbal base, and *thirty-five* to form them from the root in its substantive form.

Now, the English language is constructed on precisely the same principles. It looks like the identical original building

fallen into ruins, and rebuilt in part of new materials with a large intermixture of old stones, with their ancient sculptures graven deep on them, which, though often incongruous in their connection, read lessons of the past, when time was young, of more than passing interest. There are a few primitive roots in English, and the eighty thousand words found in our dictionaries are nearly all compounds of those few roots. Causal verbs are formed by affixes, and others by vowel changes in the root, as in Sanskrit; but far more by prepositions, many of which are identical with the Sanskrit particles.

Nouns and adjectives are formed by suffixes, as in Sanskrit, and these suffixes, as well as the roots, are sometimes of common origin. Thus divinity comes from the root *devs* and the affix *ty*, and the same word is made in Sanskrit and Pali from *deva* and the affix *twa*, making *devatwa*. So gravity is formed in Sanskrit from *guru*, heavy, and the affix *twa*, and signifies venerableness, as well as weightiness, like the English word; showing the antiquity and unchangeableness of our modes of thought, as well as of language. The very common English affix *tion*, Latin *tio*, forming abstract nouns, is *ti* in Sanskrit. Thus donation may be easily derived from the Sanskrit, where *da*, to give, forms the word donation, by adding *na*, making *dana*; but the Latins formed their verb *dona*, to give, on the base of the Sanskrit noun, and then added *tio*, to make the substantive *donatio*, which in English becomes donation. The affix *tra* forms nouns of agency like the English *er* or *or*, hence *datra*, whence comes the Greek *doter*. The common word for donor in Sanskrit is *danu*; and all the numerous words from this root in Greek, Latin and English, may be easily derived on regularly grammatical principles from the Sanskrit or Pali. Adjectives ending in *ed* in English are formed by adding *ta* in Sanskrit. Thus *danta* is formed from the verb *dama*, to tame, or daunt, the *m* being regularly changed to *n*, the dental nasal when the dental mute *t* is affixed; and so *domo* signified to tame in Latin, and the English word *daunt* is formed from it by the same rule. Compound words are formed in English as in Sanskrit. Thus *magnanimous* represents the Sanskrit *maha manas*, being formed from the same roots—*maha* great, by a common change of the guttural becomes *mag*, and *manas* mind. So the Greek *dusmenes*, evil-minded, is *durmanes* in Sanskrit.

The vowel changes in the English irregular verbs, arose from their being conjugated originally as regular Sanskrit verbs. Thus:

Bear,	Bore, or Bare,	Borne.

The root of this verb in Sanskrit is *bri*; and

Bri is the Sanskrit base of the present tense; hence *Bear.*
Bar " " imperfect " *Bare.*
Barana " " perfect participle " *Borne.*

Sometimes the English verb is formed from the root unchanged, where in Sanskrit and Pali it is modified before being conjugated. Thus to creep, in Sanskrit is *srip*, from which the English verb comes, but to form the base of the present and imperfect tenses, it is changed to *sarp*; and from this changed root we have the English noun *serp*-ent. In the Sanskrit tenth conjugation, the present imperfect and past participle, are all formed from the same base; and so with many of the irregular verbs. Thus in Sanskrit *kutt*, to cut, is of the tenth conjugation; and in English the present, imperfect and past participle, are all *cut*, as in Sanskrit. Although the principles on which these parts of the verb are formed are clearly the same, yet in particular instances, where the roots are of common origin, they do not always coincide. For instance, the verb to bind is *bandh* in Sanskrit, and this form is preserved in conjugation, while in English we have both *bind* and bound. The fragmentary character of our language is illustrated, by the way, in our verb to go, where the form of the imperfect tense is lost. In Sanskrit the word, though irregular is complete, and in German the missing tense is preserved in *ging*. The Sanskrit participle is *jugmana*, German *gegangen*, which we have changed in English to *gone*.

Many other correspondencies might be pointed out in derived words, but the history of language proves that the identity of tongues is not to be established by a comparison of compounds and derivatives. They are the leaves and shoots of the tree, always changing, while the stem remains the same. For a language to remain unchanged, the speakers must remain unchanged, in the same locality, see the same objects, be subject to an unchanged course of events, and have stereotyped thoughts. Bring them into new lands, in contact with other tribes, subject them to varied circumstances, and throw new systems of science, philosophy and religion in their midst, and the language cannot remain stationary. If, then, we have, after a separation of four thousand years, a body of primitive roots common to English, and Pali, and Sanskrit, which we have, we have all the proof of the identity of the languages that is possible in any case; all that we could have to prove the identity of one known to be the same, on comparing it after the same long interval.

The practical value of a knowledge of Pali in our etymological researches, may be illustrated by a few examples. Dr. Pickering, who is a very accurate writer, says in one of the volumes of "The Exploring Expedition," a "cow" is called in

Egypt and Arabia, ...	(the male,)	*thour.*
Palestine, ...	"	*thwr.*
Ancient Greece, ...	"	*tayrous.*
" Italy, ...	"	*taurus.*
France, ...	"	*taureau.*

" All one word, but never passed into Britain.

Egypt and Arabia,.....	(the female.)	*bakar.*
Palestine.....	"	*bur.*
Ancient Italy,.....	"	*vacca.*
France,.....	"	*vache.*

" Like the other, it did not cross the channel into England. England, Scandinavia, Hindustan, Egypt 4000 years ago, *cow.*

" By what route," asks Pickering, "did the word reach England, and to what language did it originally belong ?"

A knowledge of Burmese literature enables us to reply—to the language of Japheth, as found in Pali, the spoken form of the Sanskrit, used on the highlands of Asia, whence came the tribes that first peopled Europe. In Pali we have:

ဂေါ	*go,*	*cow.*
ဂေါဏ	*gona,*	*kine.*
ဓောရှ	*dhorasha,*	*tauros.*
ဝုသ	*vusha,*	*bos.*
ဗောသု	*bosu,*	"
ဥသ	*usha,*	*ox.*
ဗလိ	*bali,*	*bull.*

Again, Capt. Yule says : " This epithet *Phra,* which occupies so prominent a place in the ceremonial and religious vocabulary of both the Siamese and the Burmese, has been the subject of a good deal of nonsense. It is unfortunate that our Burmese scholars, have never, (I believe) been Sanskrit scholars, nor *vice versa,* so that the Palee terms used in Burmah have had little elucidation. On the word in question Professor H. H. Wilson has kindly favoured me with a note ; Pra is no doubt a corruption of the Sanskrit *Prabhu,* a lord or master. The *h* of the aspirate *bh* is often retained, leaving *Prahu,* which becomes *Práh* or *Phra.*" The learned Professor is here quite in fault, so far, at least, as the use of the word in Burmah is concerned. It is a genuine Burman word, spelled *bhurà,*[1] and, in the native Pali dictionary before me, is given as the definition of thirty-eight epithets applied to Gaudama, and primarily signifies God, and not " lord or master," which is a secondary signification. The word to which it most properly corresponds in Pali is *Deva,*[2] identical with the Greek *Theos,* which, though the name for God, was also applied to men, especially to kings, precisely as *Deva* is used in the Pali books, and as *Bhu-ra,* pronounced *Phu-ya,* is heard in Burmah. The Burmese word often stands as the definition of the Pali *bhagawa,* the Sanskrit *bhagawut,* which Professor Wilson defines as " the common appellative of a prince or deity."

1 ဘုရား 2 ဒေဝ

Sometimes it defines *vhante*, which is rendered by Spiegel, in his Latin version of the book on the ordination of the Budhist priests by *domini*, a word which occurs eight times in a "Budhist inscription of king Priyadarsi," that has been translated by Professor Wilson.* He says: "M. Burnouf renders it throughout by Seigneurs, Sirs, considering it the Prakit form of the Sanskrit Bhavantah, the plural of the honorific pronoun Bhavan, your honor." As both words exist in Pali, this derivation must be erroneous. Moreover, it is used in the singular. Thus, Gaudama says in the Pali version of Wathandie: *ahan bhante*, rendered in Burmese *gna bhura*, "I, God;" a very common expression in the Burmese books. The Professor renders the word by a verb in which I think him decidedly wrong.

Once more, Capt. Yule says:† "Probably Men-tara-gyi Phra, a common appellation of Burmese monarchs. It is commonly interpreted by Burmese scholars as 'great king of justice,' or righteousness. But as I see that *Para Mendr*, is also a title of the kings of Siam, the word must be from the Pali, probably from *Mantra*—counsel, as suggested by Professor Wilson." However it may be with the Siamese word, the Burmese title is certainly not Pali. The Burmese kings often take honorific Pali names, of which *Maha-dhamma-raza*,[1] "great king of the law," is one; and this phrase was sometimes used in a Burmese translation, *Men-tarà gyie*.[2] The Portuguese *Mandara* of 1541 is quite as fair a representation of the Burmese word as Crawford's *Mang-ta-ra*.

Yule says:‡ "The central mountain, Maha Meru, is, however, by the Burmese called Myen-mo Toung, mount Myenmo, a form taken, I believe, directly from the Ceylonese." F. Buchanan says, however, that Myenmo Toung signifies the "Mount of Vision." Neither statement is quite correct. Myen-mo[3] is a compound word, of which the first syllable is Burmese and signifies, with the intonation given it by the native author of the Pali dictionary, "high;"‖ and the second syllable is the Pali *meru*[4] Burmanised. Pali words when brought into Burman usually change the penultimate vowel to ō, and drop the last syllable in pronunciation, but retain the consonant in writing, *thoted*, killed or made silent. Thus in *mō*, the *m* and *r* of meru both appear in writing though not a vestige of the *r* is heard in pronunciation. *Myen-mo* then signifies "High meru," paralled to *Maha meru*, "Great meru."

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* Journal of Royal Asiatic Society, Vol. XVI. page 357.

† Report, page 209. ‡ Report page 237.

‖ With a different intonation it signifies to "see"—Hence Buchanan's definition.

1 မဟာဓမ္မရာဇာ။ 2 မင်းတရားကြီး။ 3 မြင့်မိုရ်။ 4 ဇမ္ဗူ။

BURMESE LANGUAGE.

The truthfulness of the tradition that the Burmese came originally from the north, is singularly confirmed when tested by their language. I open the Burmese New Testament, and the first passage my eye rests upon reads: "*Aser of tribe was who Phanuel of daughter Anna of name had who prophetess a was.*" Read backwards it is: "[There] was a prophetess who had the name of Anna, the daughter of Phanuel, who was [of] the tribe of Aser." Thus proving that the Burmese idiom requires the order of the words in a sentence to be exactly the reverse of the English. All the Karen dialects, the Talaing, the Siamese, the Shan, and the Chinese, require substantially the English arrangement. This alone proves the Burmese to be a widely distinct people from any of these nations; but on turning to the Tibetan, precisely the same idiom of the inverse order of the words is found as in Burman.

Csoma de Korros, the Tibetan grammarian, says: "In the Tibetan sentence, 'In a book seen by me,' the actual order of the words will be found in translation to be exactly inverted: '*Me by seen book a in*".

The languages are further proven to be cognate by an examination of the roots, many of them being manifestly of common origin.

The following specimens have been selected:*

English.	*Tibetan.*	*Burmese.*	*English.*	*Tibetan.*	*Burmese.*
Head	go	ghaung	Tree	shing	theet
Foot	kango	khe	Road	lam	lan
Eye	mik	myetsi	Little	nyung	gnay
Ear	navo	na	Work	las	louk
Hand	lango	let	Sick	na	na
Blood	thak	thwe	I	gna	gna
Male	po	pho	Two	nyis	hnit
Female	mo	ma	Three	sum	thung
Sun	nyi ma	ne	Four	zi	le
Moon	lava	la	Five	nga	gna
Dog	khye	khwe	Nine	guh	ko
Fish	nga	gna	Ten	chuh	chhay
House	khyeim	eing	Here	dieho	digo
Fire	ma	mie	There	hacho	hogo
Salt	chha	chha	Negative particle	ma	ma

* From Hodgson's paper, Journal A. S. Bengal, December 1847, and Korros's Grammar and Dictionary.

A multitude of words have been introduced into the Burmese from the Pali, and now form a part of the language, as many Latin and Greek words do in English; as:

Ooyin,	ဥယျဉ်။	a garden.
Tereikhsan,	တိရိစ္ဆာန်။	a brute animal.
Palin	ပလ္လင်။	a throne.
Dhat,	ဓါတ်။	an element.
Kala,	ကာလ။	time.
Patama,	ပဌမ။	first.
Garuna,	ကရုဏာ။	grace.
Thadie,	သတိ။	circumspection.
Oopama,	ဥပမာ။	a comparison.

Scientific terms are usually from the Pali; as:

Gyo,	ဂြိဟ်။	a planet.
Tara,	တာရာ။	a constellation.
Ganan,	ဂဏန်း။	a figure, numeral.
Yuzana,	ယူဇနာ။	a measure of length.
Mo,	မိုဃ်း။	the sky.

Compound words are very common, formed of the Pali word and its Burmese synonyme; as:

Puhtawie-myegyie,	ပထဝီမြေကြီး။	earth.
Detha-ayat,	ဒေသအရပ်။	place.
Nitsa-htawaya,	နိစ္စထာဝရ။	eternal.
Seik-hnelung,	စိတ်နှစ်ထိုင်း။	mind.

Mental and metaphysical terms are principally from the Pali; as:

Rupa,	ရုပ်။	form.
Wedana,	ဝေဒနာ။	sensation.
Thanya,	သညာ။	perception.
Thenkhara,	သင်္ခါရ။	conception.
Winyana,	ဝိညာဏ။	consciousness.
Auktapa,	ဩတ္တပ။	fear of sin, or conscience.
Dhamma,	ဓမ္မာ။	object of thought.

The principal districts, rivers and cities, have usually Pali names given them besides their ordinary vernacular ones. Thus the kingdom of Martaban is usually designated in the history

Rammanya[1]; and that of Toungoo by Zeya-wattana.[2] The Burmese name of Sitang river, above Shway-gyeen, is Poung-koung[3]; but its Pali name is Athà-watie.[4] Syriam is Thanlhyen[5] in Burman, but Khuddha-dippa[6], or the Island of Khuddha, in Pali.

The same Pali name is sometimes applied to different places. Thus Toungoo, when it was founded, had the name Ketumati[7] given it, but the same name varied to Ketuwati,[8] in the same signification, "Possessed of the royal banner"—is applied also to Pugan.* So one of the old cities of Toungoo, built in the forks of a stream, was called Dwara-wati,[9] "Possessed of the door"—and the same name appears to have been given to Sandoway.†

Different Pali names are occasionally applied to the same place. Thus the kingdom of Pugan is sometimes called Arimaddana, and sometimes Tampadiepa, or the "Island of Tampa."

Thatung had the Pali name of Rama and Ramawate—possessed of Rama; but the name has been subsequently applied to Maulmain.

Capt. Yule, speaking of the "Henza," says: "Col. Burney calls it a *Peacock*. Dr. Howard Malcom in comical perplexity explains the Henza to be "the Brahminee goose, a species of kite. The word is Sanskrit, *Hansa*, a goose, kindred to *anas* and *anser*, *gansa*, *gander* and *chen*. The Hensa (hansa) is regarded as the king of birds. It is perhaps a mythicised swan." This is placing Col. Burney in the "comical" position of saying that a goose is a peacock; for Col. Burney probably knew as well as any of us, that *Hansa*, cutting off the last syllable, formed the Greek *chen*; cutting off the first, the Latin *anser*; and that the feminine form *Hansi* became in Slavonic *gûsj*, and in English, goose.‡

Capt. Yule confounds three different birds. The peacock is the national bird of Burmah, as the eagle is in America, and is depicted on their national standards. In Burmese mythology it represents the sun, and with the hare which symbolises the moon, may be often seen on canopies in Budhist temples. It may have been adopted to indicate that the Burmese monarchs are a sun-descended race.

The *Hensa* is the national bird of Pegu, and I have heard the name applied to a species of perching geese, *Dendrocygna*, common in Pegu. The reason of the adoption of this bird for the national emblem is given in a legend related in Talaing history. After Gaudama had been preaching at the Court of Therema, Thanka,

* See inscription on Arracan bell, J. A. S. Bengal, April 1838.
† See inscription from Ramree, Journal A. S. Bengal, May, 1834.
‡ See Bopp.

[1]ရန္ညာ။ [2]ဇေယျဝတ္တန။ [3]ပေါင်းခေါင်။ [4]အာသာဝတီ။
[5]သံလျင်။ [6]ခုဒ္ဒဒိပ္ပ။ [7]ကေတုမတီ။ [8]ကေတုဝတီ။ [9]ဒွါရဝတီ။

king of Thatung, the country of Suvannabhumi, he returned to Maguda through the air with twenty thousand saints in his train, like the full moon in the midst of the planets, constellations and lunar mansions. In the midst of the sea he noticed two henzas on a silvery sand, and smiled. When Ananda observed him smile, he asked the reason; and Gaudama answered that at that place a kingdom with all the appurtenances of royalty would be established, and on account of those two birds it would be called Hensawati, possessed of Hensas.

The *Karawit*,[1] Pali *Karawita*,[2] is Garuda, the carrying bird of Vishnu, which has been brought into Burmese mythology with the other prominent objects of the Hindu pantheon. It is often seen erected at the summit of flag-staffs in the neighborhood of religious edifices, and this is deemed "the king of birds." "The Pandits of Behar suppose the gigantic crane to be the Garuda."

TALAING LANGUAGE.

The Talaing language has the intonations characteristic of the Chinese family, but to a much less extent than the Chinese itself, the Tai, or the Karen. The roots are principally monosyllabic; but, as in both Burman and Karen, many are formed on the polysyllabic principle: a consonant, most frequently a smooth mute, with its inherent vowel, constituting a syllable, without any signification in itself, being prefixed to a monosyllabic root to form a new word. Thus, *kămi*, new; *khaming*, a turban; *tala*, master, lord; *pareh*, ugly; *yĕmu*, name—with a multitude of others, differ in no respect from dissyllabic words in the Indu-European tongues.

The Talaing is remarkable for its numerous compound consonants, many of which are not found either in Chinese, or in the other Indu-Chinese languages. Nearly all the smooth and aspirated mutes, and the liquids, are compounded with the nasals *m* and *n*; forming such compounds as *km*, *khm*, *chm*, *chhm*, *tm*, *t'hm*, *dm*, *pm*, *phm*, *mn*, *kn*, *khn*, *sn*, *lm*, *sm*, and others. Some of these appear to be abbreviations of polysyllabic words. For

[1] ကရဝိတ်။ [2] ကရဝိတ။ ကရဝိရ။ ကဠဝိယာ။

intance, *mnih*, man, is clearly of common origin with the Sanskrit *manuja* ; and *srom*, snake, must have the same source as the Hebrew *saraph*, and the Cashmeeree *sareep* and *sriph*.

The grammar of the language is exceedingly simple : the subject usually preceding the verb, and the object following it, as in English. Like all the other Indu-Chinese languages, grammatical distinctions are made by particles, prefixed or suffixed ; but these are much fewer in Talaing than in either Tai, Burman, or Karen. Noun-particles are usually prepositions, as in western languages. For example :

padoa sangi or *sngi*,		in the house.
atu	"	on " "
sman	"	under " "
gamok	"	before " "
plot	"	behind " "

In its vocables, the Talaing is the most isolated language in Farther India. Its roots are not allied to Tai, Burman, Karen, Toungthu, Kyen, Kemee, Singpu, Naga, Manipuri, nor any other known language spoken by the Indu-Chinese nations.* Nor is it cognate with the Chinese, or Tibetian, or any other of the Tartar tongues of which specimens have been published. It is not related to the Sanskrit or Hindee famillies of northern Hindustan ; nor to the cultivated tongues of Southern India and Ceylon, the Teluga, Carnataka, Tuluva, Tamil, Malayalam, Malabar, and Singalese. I have compared the Talaing with vocabularies of all these and others, and find it radically different ; though here and there words of apparently common origin may be discovered. Whence, then, has it been derived ? In central Hindustan, there are several wild tribes, inhabiting the mountainous regions, which are called Koles, Oraons, and Goands, embracing various subtribes known as Sontals, Bhumijas, Mundalas, Rajimalis, and by other names, whose languages seem to have had a common origin. The first notice of these people which I have seen, was published by Maj. Tickell† in 1840, in a paper on the Koles, whom he denominates Hos. This paper affords the most complete view of the people and their language, that has yet been made public ; and from this it is apparent, singular as it may seem, that the Talaing language has a radical affinity with the Kole. The first six numerals, the personal pronouns, the words for several members of the body and many objects of nature, with a few verbs, are unquestionably of common origin ; while many other words bearing a more remote resemblance, are pro-

* I have not been able to obtain any specimens of the language of Cambodia for comparison ; and cannot, therefore, affirm or deny any thing respecting that.

† Now Principal Asst. Commissioner, Maulmain.

bably derived from the same roots. The following brief vocabulary is given for comparison.*

English.	*Taling.*	*Koles.*
man	mnih	male
head	kdop	kupe
eye	mot	met
nose	muh	mooa
ear	kto	khetway
mouth	paing	bai
tongue	lĕtaik	alang
hand, arm	tau	tee
breast	to	toa
foot	jaing	suptijanga
mother	yài	aya
"	mi	mai
horn	krang	dring
bone	jaut	jang
oil	kling	ning
tiger	klĕ	kula
hog	klik	kis, sukri
fish	kă	haku
fowl	chaing	seem
egg	khmai	kirpan
earth	ti	ote
sun	tngoa	singi
moon	kĕtu	chandu

English.	*Talaing.*	*Kole.*
mountain	do,	dongar, toke
stone	tmom	tongi
water	dai	dah
salt	bo	bekh, boolong
cocoa-nut	preau	boorka
weep	yeam	yam
hear	ming	mena
take	keat	kinda
fat	kron	kirienq
thin	sri	serua
thirst	litau	titang
hunger	klo	kire
I	oa	aing
thou	mneh	nien, am
he, she, it	nyeh	ini
this	nau	noa
one	mwoa	moy
two	bá	bai
three	pi	pia
four	paun	ponia
five	mesun	monaya
six	tareau	turia
to be	num	minna†

The Chinese, the Tai, the Burman, the Karen, and all the known languages of Farther India, including the Assamese, are known to use numeral affixes; while the Talaing language stands alone, and, like Occidental tongues, unites the numeral to the noun. Thus a Talaing says: *àkăbaing bà*, two papayas; *tmom pi*, three stones; and *sngi paun*, four houses. While in Chinese, and in all the other Indu-Chinese languages, the numeral is united to an affix. The Kole has the same idiom as the Talaing. A singular noun, in Kole, is made plural by affixing *ko*; and in Talaing there is a plural-affix *tau*. But what confirms, still more, the idea of a common origin for the Talaings and Koles, is their name. One tribe among the Koles are called Oraons, who, at an unknown period, were driven by the Brahminical Hindus from the neighborhood of the Ganges. "It is these Oraons," writes Maj. Tickell, "who first give us accounts of a people called Moondas, whom they found in possession of Chootia Nagpoor." These Moondas, now call themselves Hos, but are more

* See *Journal of the Asiatic Society of Bengal*, for Nov., 1840; and for Nov., 1848. Words for comparison have been taken from both articles.

† A few words in this list might be referred to other languages: thus, the Malay word for fish is *ikan*; but the Malay is clearly not a cognate language. Again, the Chinese *k'hoo*, earth, and *tsŏh*, foot, are not very unlike the Talaing words, but more so than the Kole.

generally known as Koles. *Moond*, their ancient name, is almost identical with *moan*, the name by which the Talaings now call themselves; and it would be difficult to find any two nations, of a different origin, with names so nearly the same.*

All history, Burmese as well as Talaing, represents the Talaings as a civilized people, and in possession of Budhist teachers and the Budhist Scriptures, at an earlier period than the nations around them. A Burman inscription on Ramree Island, dated A. D. 1785-6, states that the venerable Sona and the venerable Uttara introduced, and established, the religion of Budha in Thadung B. C. 307; but that Budhism did not become paramount in Burmah till A. D. 1057, when the Burmese monarch invited the learned from Thadung to settle in his capital at Pugan, where Budhism was ultimately established, through the instrumentality of the descendants of Sona and Uttara.† According to the Singalese books, Budhaghosa's native country was Swarnabhumi, which was the ancient classic name of Pegu. A Singalese compendium says: "In the sixth year of the reign of the king Maha-Naaone, and in the year of Budha 930, the high-priest Buddothegooseke Terun-wahanse, coming to the island of Ceylon, composed the books called Visuddhimarge, etc. Upon his return to Swarnabhumiye, he composed the Turnpittike also, and employed himself in teaching the doctrine of Budha."

It seems highly probable, then, that the Hindus colonized Pegu at an early period; and this is confirmed by the fact that ancient Pali and Sanskrit inscriptions have been found in Malacca, not two hundred miles South of the Tenasserim Provinces, which prove that Hindu settlements formerly existed there, though they have left no other traces than a few half obliterated inscriptions on the rocks in the forest. The Hindu colonists in Pegu may have perpetuated themselves by amalgamation with some native tribe; and it appears from Aracan history, as quoted by Major Phayre, that a native tribe, called by the Burmese Thodun, have in fact been merged and lost in the Talaings.

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* Koros, in his Tibetan dictionary, defines *Mon* by "a general name for the hill people between the plains of India and Tibet."

† See *Journ. of the Asiatic Soc. of Bengal*, for May, 1834, where the translator says: "Which was done through the instrumentality of Sonathera and Uttathera, and their disciples and survivors." In the previous part of the inscription, as translated, they are represented as coming to Thadung thirteen hundred and sixty-four years before, which shows that the old gentlemen, as well as their "survivors," were well entitled to the epithet "venerable," as *h'tera* may be adequately rendered. There is no such anachronism, however, in the original. In the Burman, there is only one word for "disciples and survivors," which is *ahnway*.[1]

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[1] အနွယ်။

It does not appear probable that the language of the Talaings was reduced to writing before the introduction of the Budhist Scriptures, or more would have been found on record in relation to their early history. Nothing of their ancient history can be gathered from their books, beyond the representation that, in the days of Gaudama and Asoka's missionaries, they were dwelling on the Gulf of Martaban, with Thadung for their capital. The alphabet now used is manifestly derived from the one which Prinsep regarded as having been in use in the third century before Christ. The approach of that ancient alphabet to the Talaing, may be traced through the Amaravati inscriptions, of which the characters are nearer the Talaing than any other alphabet that has been discovered in Hindustan. The next link is found in the fragment of an inscription from Tokoon in Malacca, published in the *Journal of the Asiatic Society of Bengal.** This resembles the Amaravati, and both are characterized by having the tops of the letters, more especially right lines, surmounted by small curves. Another inscription, found also by Col. Low near Keddah in Malacca, approaches the Talaing much nearer, and proves a connection between the Talaings and the people of Malacca, at a former period.† The characters of these Malacca inscriptions agree with the Kutila of the ninth and tenth centuries, in which the vowel-marks of *e* and *o* precede the consonants to which they belong, as in the Talaing, Burman and all the Indu-Chinese alphabets; a form that has been obsolete in the Sanskrit for many centuries.

The *k*, which was originally a cross, like the Ethiopic *t*, had, when the second inscription on the Allahabad pillar was written, seven centuries after the first, the horizontal line slightly curved downwards; and in the Keddah inscription the curve has become a semicircle, so that the character resembles the Ethiopic *ha*. The next step, to the present character formed of two curves, was easy. The *n*, originally a perpendicular raised on a base line, resembling the Syriac *n* and the Cufic *b*, with the base prolonged, had become a perpendicular with a loop, in the Gaya alphabet; and this is precisely the form of the letter in both the Malacca inscriptions; and when written under the line, it has the same form in the modern Talaing. The square Pali must have been formed subesequently to this, for it adds to the character a double line at the top. The *t'h*, which retained its ancient form of a circle with a dot in it, to the fifth century, resembling the Phœnician *t*, is changed, in the Keddah character, to a circle with a horizontal diameter; approaching the Tibetain of the seventh century, where the same letter is a rectangle with a diagonal drawn in it. To draw the line perpendicularly, as in

* See the Number for July, 1848.

† See *Journ. of the Asiatic Soc. of Bengal*, for March, 1849.

the square Pali, was the next step. The character in its original form of a circle with a dot in it, is still used by the Talaings, though with the sound of *b*; and it is remarkable that is has no place in any other alphabet in Farther India.

The alphabe s found on the eastern coast of this peninsula present unequivocal marks of a Singalese origin. The Cambodian has letters differing widely in their forms from those used on the western side, and almost identical with the Singalese, as, for example, *kh* and *v*. The Siamese alphabet, which is the most modern east of the Ganges, was probably formed within the last four or five centuries, on the basis of the Cambodian. The ancient Singalese is said to have been composed of seven elements; but the modern Siamese is still more simple: the loop with a turn, a straight line and the three sides of a rectangle, with some modification of one of its sides, being the only elements which enter into the Siamese alphabet.

In the interior of the country, on the contrary, the alphabets appear to have had a Talaing origin. This is distinctly seen in the Laos, which has in several instances two characters to represent the same consonant sound, but with different inflections, as in Talaing where the inherent vowel also varies. Thus, the character *ga* corresponding to the Pali letter of that power, is pronounced *kĕ* in the spoken Talaing; and *ba* is pronounced *pĕ*. The Ahom, Khamti and Shyan alphabets, it appears to me, have also been formed from the Talaing, rather than from the Burman, to which they have been referred, because the broad dipthong *au* is made by a dash to the right over the consonant, as in Talaing, while in Burman no such character exists. The same dash may be seen in some old Sanskrit inscriptions, referred, I believe, to the fourth or fifth century, where it represents *à*;* and the inscriptions from Malacca exhibit an infusion of Sanskrit, such as is never seen in writing from Ceylon.

These investigations lead to the conclusion, that, while Siam and Cambodia received their religion and literature from Ceylon, the whole western coast of Farther India was civilized by people direct from Hindustan, probably from the ancient kingdom of Kalinga.†

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* See "Inscription on the iron pillar at Delhi," in *Journ. of the Asiatic Soc. of Bengal*, for July, 1838; and "Inscription on the Kuhaon pillar," *ibidem*, for January, 1838.

† *Kappal* means *ship* in Tamil; *kabung*, in Talaing; but both are probably derived from the Malay *kapal*.

KAREN LANGUAGE.

"There is," says a popular work,* "in the south-eastern division of Asia, a group of nations whose languages are distinguished by a singular formation, the like to which is not found in any other part of the globe. The languages of these nations are composed of a very small number of monosyllables." A writer in the last volume of the Journal of the Royal Asiatic Society,† says: "In languages of this class the number of vocables must, from the very nature of the case, be extremely limited." Nothing can be more erroneous. There are more roots in Karen than there are in Sanskrit, with its sixty or eighty thousand words. There are in Sanskrit less than two thousand roots, but the Karen dialects with the fewest have about three thousand, embracing the intonations which vary the roots as much as a new syllable would. Without the intonations there are about five hundred passible roots, and nearly all are in use; much the same as in Chinese, which is said to have four hundred and eighty.

The writer quoted above, speaking of the Chinese, and applying his remarks to all the Chin- ndian languages, says: "It has no affixes nor suffixes, no inflections of words, declensions of nouns, nor conjugations of verbs, and but very few auxiliary words, designating the various relations of speech. This extraordinary structure of language extends to the south, to the peninsula of Malacca." Like all other known syllabic languages, the Karen has no inflections, but it is amply provided with prefixes and suffixes, by which most of the relations of speech are made as definite as in other languages. There are affixes for gender and number; and case is distinguished in some instances by position, as the nominative and accusative; in others, by affixes, as the vocative; and in others, by prefixes, as the dative and ablative. There are auxiliary words equivalent to prepositions; the comparative and superlative degrees of comparison of adjectives are distinctly marked by affixes; and there is no want for either personal, reflective, possessive, interrogative, demonstrative, distributive, reciprocal, indefinite, or negative pronouns. The demonstratives often correspond, in their usage, to the definite article in other languages; and they are affixed in the manner that the emphatic state is formed in Chaldee. Like the Hebrew and Greek articles, they are used with "objects previously mentioned, or already known." Thus *aggelos* in Luke 1 : 11, is rendered in

* American Encyclopedia, article *Philology*.

† Vol. XVI, Page 62.

Karen, "an angel," or "one angel," without an affix; but, *no aggelos* in verse 13, is rendered "the angel," with a demonstrative affixed. By some, it has been stated, as a peculiarity of syllabic languages, that they are destitute of relative pronouns; while others have denied this position. Both statements are correct to a limited extent. In Karen, and the same may be affirmed of the Burman, there is a particle, which is equivalent to a relative pronoun, whenever the antecedent and relative are construed together, without intervening words; but in all other cases the language is destitute of a relative. Thus, "he that sent me," and "whom the Lord loveth he chasteneth," may be rendered into Karen with a relative; but the sentence, "our fathers had the tabernacle of witness in the wilderness, *which*, also, our fathers that came after brought," cannot be adequately rendered, without repeating the noun at *which*. The Karen has particles to express when attached to verbs, three voices, active, middle, and passive; five moods, indicative, imperative, potential, optative, and subjunctive; three tenses, aorist, perfect, and future; three persons, and two numbers. There are particles to express many other relations under which a verb may appear, resembling Greek prepositions in composition, among which are some that frequently correspond in signification, almost precisely to *anti sun kata pro ek*, and perhaps some others. The usual arrangement of words in a sentence is, that of "*subject, copula, predicate;* or, when the predicate consists of the verb with its object, *subject, verb, object*. Adverbial designations may stand either before or after the verb; a negative immediately before it," except one form of the negative in Pgho, and Red Karen, which stands immediately after the verb. Adjectives usually follow the nouns which they qualify. The nominative case occasionally follows the verb, and the accusative sometimes, but rarely, precedes it. Any part of the sentence may, however, be placed first, and made prominent by putting it in the case absolute. Thus, "the sparrows, their ears are crooked; and the children that eat them, their ears are crooked." "The earth, do you suppose it wide? The earth is not as wide as the Naikai bean." "Obtain, how did he obtain?" Adversative, exceptive, causal, and hypothetical clauses are required to be placed before those on which they depend; while the illative follows, and the intentional and comparative may either precede or follow. Nouns are repeated to denote multitude. Thus, "nation, nation," signifies many nations. Sometimes they are repeated to express distribution; thus, "he gave to one person a small cup, to one person a small cup," that is, he gave a small cup to each person. Repetition with a conjunction denotes diversity; thus, "one person, and one person," signifies different persons. Verbal roots repeated denote emphasis; thus, "go quick, quick," signifies go very quick; and "weed clean, clean," is equivalent to weed very clean. Words that imitate the sound of the act are often repeated after verbs;

thus, a woodman chops, "kloò, kloò;" the waves beat against a ship's side, "thwă, thwă;" fruit falls from a tree, "ā, ā;" the fagots crack in the fire, "pră, pră;" a gate creaks, "kıĭ, kıĭ;" the drum sounds, "poŏ, poŏ;" the thunder claps, "sră, sră," and rolls, "kroò, kıoò." Similar reduplications are often used for emphasis, when, from the nature of the case, they cannot be imitative of sound.

Nothing can be more erroneous than the idea that a syllabic language must necessarily be poor in words. Although each syllabic root is significant, it can scarcely be considered a word. Thus, *tau* signifies little more than *tup* in Greek; or at most, *strike* in English, which may be the noun *strike*, or a verb in the infinitive mood, *to strike*, or the imperative, *I strike*, or the subjunctive, *if I strike*, or the potential, *I may strike*, or the imperative, *strike thou*. In like manner, it may be of almost any person or number, and with this final vowel exchanged for an affix, it becomes the noun of agency, *a striker*, or the participle, *striking*, or the adjective, *striking*, or the adverb, *strikingly*. In this way many words in Karen are formed from a single root. Again, two or more roots are compounded to form a word differing in signification from either. Thus, from

eu	*bad*	and	lau	*descend*	are formed	eulau,	*degenerate*
sgha	*few*	"	"	"	"	sghalau,	*lessen*
à	*many*	"	tau	*ascend*	"	àtau,	*increase*
mà	*make*	"	bu	*paddy*	"	màbu,	*harvest.*

Roots may be compounded in this manner to any extent with almost as much facility as compounds are formed in Greek. Indeed, I think tà-mà hti-kai-tau, the *water-producer*, is as good in Karen as hydrogen is in Greek. It is a further principle in the language, to form the names of the parts from the root that designates the whole. In this manner, from the name of a member of the body, are formed all the parts of that member, for which separate words are usually found in other languages. Thus su, *arm*, with neu-ki, *corner*, forms su-neu-ki, the *elbow;* with là, *leaf*, it forms su-là, the *hand;* with ko, *head*, it forms su-ko, the *fist;* and so on to the amount of more than *forty* different words, designating some part of the hand or arm. In a similar way, more than *twenty* words are formed from the syllabic root that designates the eye; and so with words that designate other parts of the body. In Karen many new roots are formed by prefixing to other roots, one of the smooth mutes, with its inherent vowel, k', ts' (or s'), t', p'. Thus, from *ú*, the cry of a monkey, is formed *k'sú*, groan; and from *maī*, play on wind instruments, is formed *k'-maī*, make melodious sounds. This trait seems to be a connecting link between a monosyllabic and polysyllabic language; being decidedly of the latter character. All the modes of forming new words have not been enumerated; but enough has been said to prove that the Karen language is

sufficiently copious for all the ideas possessed by those who speak it.

Another common error is, that syllabic languages are vague, that they "are satisfied with awaking leading ideas; all that is merely accessory or auxiliary being understood." So far as the knowledge of the people extends, few languages can better distinguish things that differ than the Karen. In Greek, the prince of languages for precision, the verb *to be* is used in the signification of (1) be, exist; (2) come to be, come into existence; (3) be for any thing, become; (4) as a logical copulate, connecting the subject with the predicate; but for these several significations four different words are used in Karen. Thus:

"In the beginning was [*en*] the word." (John 1: 1.) Here *ō* is used in Karen.

"Great signs shall there be [*esontar*]." (Luke 21: 11.) Here *mà a'thā* is used in Karen.

"The two shall be [*esontar*] one flesh." (Matt. 19: 5) Here *kai* is used in Karen.

"His food was [*en*] locusts." (Matt. 3: 4.) Here *mè* is used in Karen.

In English we say:

"I cannot copy this book, it is too much for me.
I cannot copy this book, I have cut my finger.
I cannot copy this book, I have no paper.
I cannot copy this book, I have the proof sheets to read."

Here the word that denotes inability is the same in all the four examples, as it would be in most languages; but in Karen, four different words must be used, because the inability arises from four different causes, which in Karen are always distinguished. In the first example, the difficulty is in the thing to be done, the work is too great; in the second, the inability lies in the agent; in the third, the obstacles lie in things external to both the work and the agent; and in the fourth, there are other things that must be attended to first.

The Karen is remarkable for using words in pairs, in the signification of one of the two. Thus *nau* or *nang*, grass, takes for its couplet *mie* or *meing* wild [things], hence:

(1) *Klau* [weed,] *nau, klau mie,* weed the grass.
(2) *Klau nau mie,* " "
(3) *Klau nau,* " "

where the three forms have by usage the same signification, though literally they read,—

(1) Weed the grass, weed the wild [things.]
(2) " " the wild [things.]
(3) " "

The couplet of *pho* child, is *lie* grand-child, and a story commences: "There was a man and his wife in former times, and they had no *pho* no *lie*," where *pho* alone would give the same signification.

An old man, before the fall, is represented as walking through the forest with his daughter behind him, whom he warns not to pluck the leaves from the trees. He says, "If you pluck the leaves and throw them down, they will become *kaseu*, they will become *kalo*; and when *kaseu kalo* come into existence, travelling will become very wearisome." Here *kaseu* is the significant word for mountain and *kalo* is the couplet.

Again he says, "If you throw down the leaves, they will become *paumu*, they will become *paulay*," where *paulay*, signifying sea or ocean, is the significant term.

The paired word is often chosen from some resemblance or association with the significant term, as:

Ta-u, takhie, cloud, darkness, for *ta-u* cloud.
Takhie, tana, darkness, night, " *takhie* darkness.
Ii, nya, frog, fish; " *nya* fish.
Taphie, tanya, skin, flesh " *tanya*, flesh.

Sometimes the couplet is a foreign word signifying the same thing, as:

Klau, nwa, the bos genus, where *nwa* is Burman.
Htie, noung, water " *noung* is the Siam *nam*.
Heuphlong, heukhaung man " *khaung* " " *khon*.
Ta-u, tamyau, monkey " *myau* is Burman.
Mauhtau, para, pagoda " *para* "
Apo, dhau, to speak " *hau* "

Sometimes a couplet regarded as destitute of signification, proves, as our knowledge of the language extends, to be a significant word thus:

Hisoo the couplet of *hsa* to be sick, was regarded as of no signification until the Bghai was acquired, where it signifies fever. So *la* the couplet of *ta-kapau*, or *hseuphang* light, is probably the Bghai *lie*.

Tha-kwie the couplet *ka-nya* has no signification in Sgau, but *kwie* is the Red Karen word. *Mie* as the couplet of *nau* grass, appears destitute of meaning in all the dialects till we reach the Red Karen, where it is the common word for grass, and *nau na*, or *nang* is unknown.

DIALECTS.

All the known Karen dialects resolve themselves into two classes. Those with final consonants, and those without them, all the roots ending in vowels. The Sgau embracing the Paku, and the Bghai, including the Red Karen, have no final consonants. The Pwo, with its sub-dialects, the *Palu*, or *Htalu*, or *Taru*, or *Khu-hta*, or the Northern Pwo, the Mopagha and the Toung-thu, have numerous roots which end in consonants.

Sgau and Pwo.

The most marked characteristic of Pwo is a final nasal *ng* where the roots in Sgau, and most of the other dialects have final vowels; as

Sgau,	*Te,*	To form, create,	Pwo,	*Taing.*
„	*Nie*	Margin	„	*Naing.*
„	*Hse*	A tunic	„	*Hsaing.*
„	*E*	To bite	„	*Aing.*
„	*Htau*	To ascend	„	*Htaing.*
„	*Lau*	" descend	„	*Laing.*

Pwo often takes an aspirate where Sgau has a smooth mute, as:

Sgau	*Ka*	To break	Pwo	*Kha.*
„	*So*	" carry	„	*Hso.*
„	*Too*	" receive	„	*Htong.*
„	*Pla*	" dismiss	„	*Phla.*

A middle or flat mute in Sgau, often becomes a rough or smooth mute in Pwo, as:

Sgau,	*Die*	The cucumber	Pwo	*Htie.*
„	*Ble*	To be smooth	„	*Phle.*
„	*Dway*	The grassshopper	„	*Htway.*
„	*De*	A branch	„	*Htaing.*

Occasionally it is the reverse, as:

Sgau,	*Tau*	To strike	Pwo	*Do.*
„	*Htie*	To see	„	*Da.*

A formative smooth mute in Sgau is often wanting in Pwo, as:

Sgau,	*Kana*	To listen	Pwo	*Na.*
„	*Kaman*	The spleen	„	*Mang.*
„	*Mukanau*	A maiden	„	*Munang.*
„	*Sakho*	The mango	„	*Kho.*
„	*Thapeu*	A chatty	„	*Phung.*
„	*Thadie*	The gall bladder	„	*Dee.*

The Sgau *ny* is not found in Pwo, Y usually supplying its place; as:

Sgau	*nya*	Before	Pwo	*ya*
„	*nyau*	To be easy	„	*yau*
„	*kanyau*	To refuse	„	*kayang.*
„	*thukanyau*	Mercy	„	*yangtha.*

Bghai.

The most marked peculiarity of Bghai is found in its numerals. The names of the first five are almost identical with the Sgau, but:

Six is	*then*	*tho*	literally	three	couple.	
Seven	"	" *ta*	"	"	"	one.
Eight	*twie*	*tho*	"	four	couple.	
Nine	"	" *ta*	"	"	"	one.

There is nothing parallel to this in any language or dialects spoken around.

The difference between the Sgau and Bghai is often only a change of vowels, but there are a large number of new roots in the dialect not found in either Pwo or Sgau, as:

Bghai	*Die*	Year	Sgau	*Nie.*
"	*De*	Boiled rice	"	*Me.*
"	*Kickay*	Evil	"	*Eu.*
"	*Na*	Straight	"	*Lo.*

Red Karen.

Red Karen differs from the ordinary Bghai by having a *v* in common use, and by a change in the particles. Many of the roots too, though of common origin, are subject to peculiar changes. Thus *gh* which represents the Arabic *ghain* is very common in Pwo and Sgau, but in Bghai is often changed to *w*, and in Red Karen nearly uniformly to *r*, thus:

Serpent is	*ghu*	in Sgau;	*wu*	in Bghai,	*ru*	in Red Karen.
Ratan	" *ghie*	"	*wie*	"	*rie*	"
Good	" *ghe*	"	*we*	"	*rie*	"
Cold	" *gho*	"	*wau*	"	*rau*	"
Buy	" *pghe*	"	*pghe*	"	*prie*	"
Person	" *pgha*	"	*pya*	"	*pray*	"

Northern Pwo.

The Karen tribes north of the British boundary, as far as known, speak dialects of Pwo, varied at their eastern and western extremities. In the north-east they have an *f* in their language not found in the west or south. Thus:

Child in Pwo is	*Pho;*	*in* N. Pwo	*fu*
Belly "	*gha phung*	"	*fo*

It has also some hissing dentals, or sibilants, not in ordinary Pwo, *th* is supplied by *t*, and, as in Red Karen *gh* passes into *r*. Still, many of the roots are identical, or but slightly changed, as:

Stone in South Pwo is	*lon;*	in North Pwo	*lung.*
Chattie "	*phung*	"	*phung*
Earth "	*ghang-kho*	"	*hang-kho*
Flower "	*phang*	"	*phang*
Foot "	*khang*	"	*hang*
Finger in South Pwo is	*su-nung;*	in North Pwo	*si-nung.*
Horn "	*nong*	"	*ning*
Man "	*phlong*	"	*plu*
Post "	*htung*	"	*tune*
Spear "	*bang*	"	*bang*
Noon "	*muhtang*	"	*muhtang*
Tree "	*theing*	"	*teing*
Black "	*theung*	"	*teung*
Round "	*phlung*	"	*phlung*
Cylindric "	*bong*	"	*be-ong*
Eat "	*ang*	"	*ang*
Give "	*pe*	"	*pe*
Return "	*htaing*	"	*htaing*

Mopgha.

The Mopgha is more intimately related to the Northern than to the Southern Pwo. It has the *f* and the peculiar sibilants of the former, and like that uses *t* for *th*. A final *m* heard only occasionally in Northern Pwo is the common final nasal in Mopgha.

Several words which are formed of *m* followed by a vowel in the other dialects, have the same consonant preceded by a vowel in Mopgha, as :

Mopgha.	Pwo.	Sgau.	Bghai.	
Am	*Mo*	*Mo*	*Meu*	Mother.
Em	*Meing*	*Mie*	*Mie*	Name.
Um	*Muk*	*Mu*	*Mau*	Happy.
Lem	*Mung*	*Thamu*	*Thamo*	Live.

When these words are preceded by another word with an inherent vowel, the inherent vowel is dropped and the consonant is united with the vowel of the root, as :

Za my, and *am* mother, become *Eim* my mother
Na thy, „ „ „ „ *Nam* thy „
Na thy, „ *umpo* musket „ *Numpo* thy musket.

When the first word is followed by a distinct vowel, the initial vowel of the second word is dropped ; as :

kay our, and *am* mother, become *kaim* our mother.
Nai your, „ „ „ „ *Naim* your „

Words with a final *v* are subject to the same rules, as :

Latu a city *av* in, become *Latuv*, in the city.
Panay buffalo „ „ „ *Panaiv* in a buffalo.

Toungthu.

The Toungthu or Pa-au, is more distantly related to the Karen than any of the preceding dialects, yet more than half its roots are of common origin. It has a *v* pronounced like the Red Karen, but its final nasals assimilate it to the Pwo.

Mammalia.

Few are aware of the great difficulty that exists in ascertaining the species, and occasionally, the genera of animals in an unexplored country, as this was a quarter of a century ago. At that time, the rusa deer was, according to some authorities, a wild cow, and according to others an elk; the gaur was a bison; the paradoxure, a racoon; the bamboo rat, a mole; the wild hog, a barby russa; the gymnura, an oppossum; the wild dog, a wolf; the leopard, a cheetah; a deer, the nylghau; the goat-antelope, a wild sheep; and we had "a goat with one horn resembling the celebrated unicorn," and twenty other animals, which are now as really extinct, as the mammoth and the megatherium, and for which no one would think of looking more than for the Dean of Westminster's pet, that he describes, as

"O'er bog, or steep, through straight, rough, dense, or rare,
With head, hands, wings, or feet, pursues his way,
And swims, or sinks, or wades, or creeps, or flies."*

In those days the jungle traveller was entertained at evening by the natives around the brush fire, with wonderful descriptions of the extraordinary animals that peopled the surrounding forests. One was found exactly like an elephant, but never had tusks, and was banded across the body with white. This proved to be the tapir. Another had a skin like a cow, a mane like a horse, and horns like a goat—the goat-antelope. The third was half a dog and half a hog—the sand badger. A fourth was represented as in a transition state towards a monkey; just such an animal as would certainly become a monkey in the next transmigration. This was the loris. And a fifth had the breasts of a woman, the head of a quadruped, the tail of a fish, and and uttered, when captured, plaintive human cries—quite a

* The Pterodactyle.

new variety of the mermaid—which turns out to be the dugon.

Since Mr. Blyth became the curator of the museum of the Asiatic Society, by far the greater proportion of the Mammalia of the country has fallen under his eye, and to him we are indebted for our knowledge of species.

MONKEY TRIBE.

"The Quadrumana," says Agassiz, deservedly deemed the greatest of living zoologists, "are limited on all the continents to the warmest regions, and never but rarely penetrate into the temperate zone. This is a natural consequence of the distribution of the palms, for these trees, which constitute the ruling feature of the flora of the tropics, furnish, to a great extent, the food of the monkeys." There are more than half a dozen of the Quadrumana, or monkey tribe, in this country, and it will be new to European naturalists to learn that they draw a very small portion of their sustenance from the palms. The gibbons eat the fruit of the ficus, which genus probably furnishes more fruit in this country than all the palms together. The flowers of the cotton trees whose fleshy calixes afford much nutriment; the large flowers of the dillenia, and many others, are much sought by the white-eye-lid monkeys; while the monkeys on the streams, besides shell fish and crabs, eat the tender shoots of reeds and bamboos. All the species eat wild plantains, which are very abundant.

WHITE-HANDED GIBBON, OR LONG-ARMED APE.

The first sounds that usher in the morning in the Karen mountain glens, are the wailing cries of the gibbons on the hill sides around. The whole of the interior is alive with them; and their habit of screaming as soon as the day dawns is celebrated in Karen poetry.

There are all varieties of shade in their colouring, from tawny white to jet black.

Hylobates Lar,	Ogilby.
Grand Gibbon,	Buffon.
Homo La,	Linne, Mantiss.
Simia longimana,	Schreber.
Simia Lar,	Linne Syst.
Pithecus Lar,	Desmarest.
Simia albimana,	Vigors and Horsfield.
Hylobates entelloides,	Is. Geoff.
Hylobates albimanus,	Schinz.

of Pennant. It is found in considerable numbers in the interior, but is not so numerous as the other monkeys and the gibbons.

Semnopithecus obscurus,	Reid.
" *leucomystax,*	Temm.
" *summatranus,*	Muller.
" *halonifera,*	Cantor.
Presbytes obscurus,	Gray.

မျောက်မျက်ကွင်းဖြူ။ (မျောက်ညီ။ *Tavoy. Aracan.*)
တၢဒွိဉ်။ ဆၢအွၢဝှၤ. ကန့်၊

PHAYRE'S WHITE-EYE-LID MONKEY.

This is a new species discovered by Major Phayre in Aracan, but nearly related to the preceding species.

Presbytes Phayrei, Blyth.

FLYING LEMUR.

Major Berdmore discovered the flying lemur at Mergui, the most northern locality at which the animal has hitherto been found.

Galacopithecus volans,	Blyth.
" *Temminckii,*	Waterhouse.

မျောက်လှောင်ပျံ။

LEMUR, OR BENGAL SLOTH.

The lemur, Bengal sloth, or slow loris, as it is variously named, is found in the country ; but is not abundant. The Karens say that were it to enter a town, that town would assuredly be destroyed.

Nycticebus tardigradus,	Waterhouse, Cat.
Lemur "	Linne apud Raffles.
Nycticebus bengalensis,	Geoff.
" *javanicus,*	"
Loris tardigradus,	"
Stenops javanicus,	Vander Hoeven.
" *tardigradus,*	Wagner, apud Schintz.

မျောက်မောင်းမ။ (မျောက်လှောင်။ *Tavoy.*)
ကဆ့ၢ. ကဆ့။ ကထံ၊

BATS.

The *Cheiroptera*, or bats, have numerous representatives in Burmah. Mr. Blyth has identified seventeen different species.

FLYING FOX.

This large bat has been very appropriately named, for it bears a strong resemblance to a small fox in every thing but its wings. Nor is it very small. Adults measure from three to four feet across the wings from tip to tip. They abound on the coast, and it is quite impossible to keep ripe fruit from their depredations, without inclosing it in basket work. When guava trees are bearing, half devoured fruit will be found under them every morning, which the flying foxes have rejected. In some sections they may be seen in great numbers hanging by their heels in the tops of palmyra palms.

Pteropus	*edulis*,	Geoffroy.
"	*javanicus*,	Desm. apud Horsfield.
"	*Edwardsii*,	Geoffroy.

လင်းဆွဲ။ လင်းဝက်။ ဖျာဖန်ပါ. ဘျါဖးဒိန်

SMALL FRUIT EATING BAT.

A small species of the same tribe as the above was discovered in Shwaygyen by Major Berdmore. It is "the smallest of frugivorous bats," writes Mr. Blyth, and the specimen from Pegu is remarkably long nosed."

Macroglossus	*minimus*,	Grey.
Pteropus	"	Geoff.
"	*rostratus*.	Horsfield.

A third species of frugivorous bats, found all over India and the Malay countries, is

Cynopterus	*marginatus*.	
Vespertilio	"	Buch. Ham.
Cynopterus	*Horsfieldii*	Grey.
Pteropus	*tillbocheibus*	Temm.
"	*pyrivorus*	Hodson.

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LIGHT-COLOURED VARIETY.

Petit Gibbon,	Buffon.
Hylobates variegatus,	Ogilby.
Hylobates leuciscus,	Cantor.

မျောက်လွှဲကျော်။ (ချေးထိုချေးထာ။ *Aracan.*)
ကယ၂၅ဖါ. ကယုၤဖဉ် ယၢၤကဖဉ်

HOOLOCK GIBBON.

The long armed ape of Aracan is a different species from the preceding. "In walk," says, Mr Blyth, "on the ground, this animal is a true biped, holds up the arms over the head." Both are called by the same native names.

Hylobates hoolock.

OMNIVEROUS MONKEYS.

Three species of monkeys with cheek pouches, and "more or less omniverous," are common in the country.

PIG-TAILED MONKEYS.

This monkey is least common of all the species in the Provinces, but it is most frequently seen in confinement. It is found inland, but rarely if ever on the banks of streams.

Papio nemestrinus,	Ogilby.
Simia nemestrinus,	Linne.
Simia Platypygos,	Schreber.
Simia fusca,	Shaw.
Macacus nemestrinus,	Desmarest.
Simia carpolegus,	Raffles.
Inuos nemestrinus,	Blyth.

မျောက်ပထီး။ (မျောက်လယ်ုင်။ *Aracan*)
ဆ၂အူ၂ထိ၂. တးအူးထိး။ ယၢၢ်ထိဉ်။

RED-TIPPED PIG-TAILED MONKEY.

This is a new species described by Mr. Blyth from Aracan, with "hair on the nape and shoulders four inches in length. The tail-tip in an old male vivid rufous."

Inuos leoninus, Blyth.

FISHER MONKEY.

This monkey is more numerous in individuals than any other species in the Provinces. It abounds on the sea-shores, and on the banks of inland streams, especially on tide-waters, where it appears to draw a large portion of its sustenance from the crabs, and shell-fish found on the banks. Hence the Burmese have

named it the "fisher monkey," and when the tide is out, a whole troop is often seen issuing from the jungle to conchologize. Some are observed turning over stones in diligent search of shell-fish, others breaking up the shells they have found to get at the animals within; but most seem to be in search of small crabs, and wherever the trace of one appears, a monkey will thrust down his arm up to the shoulder, if necessary, to draw it out of its hole. Fruits, however, are as acceptable to them as shell-fish. On one occasion, coming down close in shore at the mouth of the Tenasserim, a troop of them followed my boat for a considerable distance, being attracted by the plantains that we threw out, which they picked up and ate with great avidity.

The apes, that Solomon's fleet brought from Ophir, were probably monkeys of the genus to which this species belongs. They abound in Hindustan, and their Sanskrit name is *kape*. The Hebrews and Greeks appear to have adopted the name by which the animals were known in their native country, for they were called in Hebrew *koph*, and in Greek *keephos*, and *keebos*, which Scapula says, was an animal of the genus simia, "having a tail—*caudem habens*;" so they were not apes, as the word is used in zoology, but monkeys.

Cercopithecus cynomolgus,	Ogilby.
Simia cynomolgus,	Linne.
Simia aygula,	Linne.
Simia attys,	Schreber.
Macacus cynomolgus,	Desmarest.
Simia fascicularis,	Raffles.
Cercocebus aygula,	Geoff. apud Horsfield.
Inuos cercopithecus,	Blyth.

မျောက်တင်း ဆန်အူနထံ၇. ယာဂ်ထံ၊ တးအူးထံ၊

COALY MONKEY.

The coaly-monkey is common in Aracan, where it has the same vernacular names as the preceding species, which it much resembles.

Macacus carbonarius.
" *cancrivorus,* Blyth.

FRUGIVORUS MONKEYS.

We have two species of long tailed monkeys without cheek pouches, whose diet is "exclusively vegetable."

WHITE-EYELID MONKEY.

This black monkey has a white ring around the eyes, which gives it a peculiar appearance, and is probably the negro monkey

Mr. Blyth furnishes me with the following list of the shrews :

Sorex griffithii,	Horsfield.
" *serpentarius,*	Geoffroy.
" *fuliginosus,*	Blyth.
" *nudipes,*	"
" *cærulescens,*	Raffles.
Syn. S. piloides,	Shaw.
" *indicus,*	Geoff.
" *capensis,*	"
" *giganteus,*	"
" *Soneratii,*	"
" *crassicaudatus,*	Lieh.
" *myodurus,*	Gray.

ကြွက်စုတ်။ ယီ. ဝံယွန် နါဝံယွန် ဝံနးယွန် စွိုင်

MOLE.

Major Berdmore discovered a mole at Shwaygyen. Mr. Blyth wrote : "It is my *Talpaleucura*, hitherto only known from Sylhet, and the Kassia hills."

DORMOUSE.

Writing to Major Berdmore, Mr. Blyth says : "You have sent a wholly new genus of edenta, male and female and young, which I think belongs to the dormouse group; but cannot decide till I have examined its indention and internals. Teeth very long and flattened towards the lips, where furnished with longish bristles, legs short"

CARNIVEROUS ANIMALS.

The *Carnivora*, or carniverous animals, number nearly thirty species.

MALAY BEAR.

The Malay black bear, much resembling the black bear of America, is not uncommon in the interior. On one occasion, while sleeping in a Karen field that had been recently harvested, I was disturbed all night by a drove of them digging up the roots of the sugar cane that had been left in the field. They will occasionally attack a man when alone. On descending the Tenasserim a few years ago on rafts, the foremost raft passed over a rapid, and made short a turn into a little cove below, when a bear from the shore made a plunge at the raft, and threw the two Karens on it into the water. At this moment the other rafts came in sight, and the bear retreated. On another occasion I met with a Burman and a bear that he had just shot, and the Burman assured me that he shot the bear in the very act of running upon him. And last year, a Karen of my acquaintance in Toungoo, was attacked by one, overcome, and left by the bear for dead. Though severely bitten, the man recovered.

The Kamees and Karens describe a smaller species, yellow on the breast, for which they have a distinctive name ; but I imagine it is a variety of the above. The Burmese and the north-

ern Karens say there is a species with feet and hands like a man, which they call man-bear. This I suspect to be a fabulous animal, founded on reports of the orang-outang.

Ursus malayanus.

ဝက်ဝံ။ ဖွာထွေ့. တောင်းထိမှုဂ်။ ဆဲ။
ဖွာထွေ့ယွာ. ထိခုဉ်။ *(Burmese small species.)*
လူဝံ။ တောင်းကညီ။ *(man-bear.)*

PIG-BEAR.

The pig-bear, or sand hog, or Indian badger, or sand badger, as it is variously named, is not rare, especially in the southern provinces. It has the general appearance of a hog, with claws like a bear, but the Burmans say it is half hog and half dog.

Arctonyx collaris.

ခွေးတဝက်၊ဝက်တဝက်၊ ခွေးတောင်း၊ဝက်တောင်း ဆန့်ကိုးနှိ. ဖွံ့။

ARACAN PIG-BEAR.

Mr. Blyth describes a new species from Aracan and Assam.

"Adult about half the size of the adult of *A. Collaris*, F. Cuv.: having a much longer and finer coat, very like that of the European badger, but softer, though not so long and soft as in *Taxidea*; the muzzle less broad and hog-like than in *Collaris*; the ears also are proportionally smaller than in that species; the tail is shorter; and the colours and markings, though similar, are much brighter.

Arctonyx taxoides.

MONKEY TIGER.

This animal was first discovered in Malacca a few years ago, and is not known to exist north of British Burmah. "In its habits," says Dr. Cantor, "it is both arborial and terrestrial, and nocturnal, sleeping till the sun is below the horizon, when it displays great agility in searching for small quadrupeds, birds, fishes, earth-worms, insects and fruit. The howl is loud, resembling some of the Malayan *Paradoxuri*;" and like that tribe, it has a gland secreting a fluid of a peculiar odour. It is a rare animal, and when in the possession of Europeans has been repeatedly shown to me as a nondescript. "It is remarkable," says Mr. Blyth, "for being the only placental mammal of the old world, which is furnished with a truly prehensile tail." Monkey tiger is a translation of its Burmese name, and is somewhat descriptive of its character. It is about the size of a small monkey, with a long retractile tail.

Arctictis Binturong, Fischer.
Viverra ? Binturong, Raffles.
Paradoxurus albifrons, F. Cuvier.
Ictides ater, F. Cuvier.
Arctictis penicillata, Temminck.

မျောက်ကြောင်း ကြောင်မြီးကောက်၊ ဆန့်. ကစွဲ။

LEAF-NOSED BATS.

These bats have various appendages to the nose. When the leaf on the nose is simple, it is referred to the genus *Megaderma*.

Megaderma spasma	Geoff.
" *trifolium*	"
Vespertilio spasma	Schreber.

Mr. Blyth his furnished me with the names of four other species of leaf nosed bats, that he has received from this country.

Rhinolophus affinis	Horsfield.
Hipposideros nobilis	"
" *larvatus*	"
" *murinus*	Elliot.

လင်နှို့။ ဖျာဘဲနာ. ဘျာကာနာ။ ဖျဲယုဉ်။

ORDINARY BATS.

Every one who visits the limestone caves of the Tenasserim coast is startled with their bat-wing music. Suddenly on entering these subterranean halls thousands of bats rush from their dark recesses, and wheel over the traveller's head with the deep whizzing sounds of a passing water-spout. And then they hang trembling and rustling their wings in the lofty black galleries above, like a choir of wind harmonies muffled in the mountains. "They are," says Mr. Blyth, mostly insectivorous, but some frugivorous, and others more or less predatory."

Nycticejus flaveolus,	Blyth.
" *castaneus*,	Grey.
Scotophilus fuloidus,	Blyth.
" *coromandalianus*,	Cuvier.
Vespertilio adversus,	Horsfield.
Myotis "	
Taphozous saccolaimus,	Temm.
" *malanopogon*,	"
" *longimanus*,	Hardw.

လင်းနှို့။ ဘျာ. ဖျာ. ဖျဲ.

INSECT-EATERS.

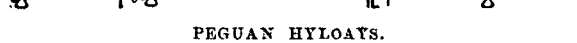
Three genera of *Insectivora*, or insect-eaters, have been discovered in the country; but, notwithstanding their classification, they by no means confine themselves to the work of devouring insects.

PEGUAN TUPAIA.

The tupaia (first discovered in Java, and next in Pegu, hence the name given it by Lesson, *Tupaia de Pegu*,) is an animal resem-

bling a squirrel, for which it is often mistaken, but it has a much longer head with a dentition resembling the hedgehog, and is more easily domesticated. One that made his home in a mango tree near my house in Toungoo, quite uninvited, made himself nearly as familiar as the cat. Sometimes I had to drive him off the bed, and he was very fond of putting his nose into the tea cups immediately after breakfast, and acquired quite a taste for both tea and coffee. He lost his life at last, by incontinently walking into a rat trap.

Tupaia javanica, Hors.
" *Peguana*, Lesson.
" *Belangeri*,
" *ferruginea*,



PEGUAN HYLOAYS.

"That curious little animal," writes Mr. Blyth to Major Berdmore at Shwaygyen, "like atupaia, with a short snake tail, is a most unexpected discovery for the genus *Hyloays*, has heretofore been only known from the Malayan Archipelago." It has twice as long a tail as the Malay species, and Mr. Blyth, regarding it as distinct, has named it

Hyloays peguensis, Blyth.

MUSK SHREW.

The musk shrew is usually called in India the musk rat; but it is a very different animal from the musk rat of America. We have four species, all of which emit an offensive odour, so much so that when put together with a cat in the same box, the cat will not touch them. They are readily distinguished when in a house from the common rat, by a peculiar shrill squeel which they frequently utter.

I sent Mr. Blyth a specimen of the smallest species, and he wrote: "Mr. Grey identifies this minute shrew with *S. pusillus*, S. G. Gmelin, *Reise* III, 499, t. 75, f. 1, and suggests it to be the *S. pygmœus*, Pallas, *S. exilis*, Gm. *Syst. Nat.*, and *S. cœcutiens* v. *minutus*, Laxm." He adds: "It is the smallest of all known mamalia."

Sorex Peyrotettii, Guerin.
" *pygmœue*, Hodgson.

Mr. O'Riley sent him *S. nudipes*, a new species, "remarkable for its naked feet and very large ears." Though first discovered at Amherst, Major Berdmore has since met with it at Shwaygyen; who also sent Mr. Blyth *S. serpentarius*, "the large godown shrew," from Mergui, seven inches long; but I have found them full two inches longer on the Bghai mountains of Toungoo.

WEASEL.

Major Phayre met with an animal of the weasel tribe in Aracan, and it probably exists in these Provinces, though it has not yet been discovered.

The Hebrew word rendered weasel, in Leviticus, is identical with the Arabic *khalad*, which signifies a mole.

Helictes Nipalensis,	Hodg.
Gulo orientalis,	Horsf.

ကြောင်ပြန်။

OTTER.

Otters abound in some of the streams. In the upper part of the Tenasserim, a dozen at a time may be occasionally seen on the rocks in the river. The Burmese sometimes domesticate them, when they will follow a man like a dog

Lutra leptonyx,	Blyth.
Lutra Barang,	Raffles.
"*Barang Barang*" *or Ambrang,*"	Raffles.
Lutra Simung,	Schinz ?

ဖျံ။ ဘိုး. ဆိုး

The Aracanese otter is a different species.

Lutra Nair,	Fred. Cuvier.
Lutra indica,	Gray.

WILD DOG.

There is a wild dog in the Provinces which Mr. Blyth regards as a distinct species ; and the Karens have described to me an animal that makes his kennel in the ground like a fox or a jackal, which they say is found in the Shan country. The fox of the English bible is probably the jackal. The Hebrew word is *shugal*, the Persian name of the jackal is *shaghal* and *shakal*, and the Pali is *thengala** or *shengala*, from the same root, which the Burman books render "earth-dog."†

Canis rutilis.

တောခွေး၊ ထွဲဉ်မံး ထွဲ၂မံး.

JACKAL.

It was confidently believed, till recently, that there were no jackals in Burmah. Capt. D'Oyly while at Prome was the first to controvert this opinion, and Lt. Bosworth having shot one at Meaday, the skin was sent up to Calcutta by Major Phayre, where it was identified with the species so abundant in that vicinity.

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*သင်္ဂလ။ †မြေခွေး။

MALACCA CIVET.

The Indian civet cats secrete an odoriferous substance identical with civet, though not the civet of commerce. This species is not infrequently found in the villages, and its secretion enters into the Burmese Materia Medica.

Viverricula malaccensis.	
Viverra malaccensis,	Gmelin.
" *Rasse,*	Horsfield.
" *Gunda,*	Buchanan Hamilton MSS.
" *indica,*	Geoffroy.
" *bengalensis,*	Gray : Illustr.
" *pallida,*	Gray : Illustr.
Genetta manillensis,	Eydoux.

ကြောင်ကတိုး၊ (ဝယောင်းကြောင်ပြောက်။ *Arracan.)*
ထိုးဖအိုး. တင်နာခံပူ ထိးအူ တဲ၊ဖးဒိန်

ZIBETH CIVET.

This is another species of civet-cat, not so abundant as the preceding, which the Burmese call "the horse-cat," from the mane on its neck.

Viverra Zibetha,	Linne.
" *undulata,*	Gray.
" *malanurus,*	Hodgson.
" *orientalis,*	"
" *civettoides.*	"

ကြောင်မြင်း။

THREE-STRIPED PAGUMA.

This animal is very common, and occasionally enters houses in the towns in pursuit of rats. When young it is easily domesticated, and valuable as a rat-catcher. It does not appear to have been seen in Aracan.

Paguma trivirgata,	Gray.
Viverra "	Reinwardt. Mus. Leyd.
Paradoxurus trivirgatus,	Gray.

ကျောင်နဂါး။ ထိုးထိုးဖိုး. ထိးထိုးဖိ

COMMON PARADOXURE.

This species is found throughout the country. Major Phayre met with it in Aracan, and Major Berdmore has sent it up from Mergui.

Paradoxurus Musanga,	Gray.
Viverra hermaphrodita,	Pallas, apud Schinz.
" *fasciata,*	Gmelin ?
" *Musanga,*	Marsden, Raffles.

Musan bulan,	Raffles.
Ichneumon prehensilis,	Buchanan Hamilton.
Platyschista hermaphrodita,	Otto } apud Schinz.
Paradoxurus Pallasii,	Gray } apud Schinz.
" *Crossii,*	" } apud Schinz.
" *dubius,*	" } apud Schinz.
" *Musangoides,*	Gray.
" *typus,*	apud Schlegel.
" *felinus,*	Wagner, apud Schinz.

ကြောင်ဝံဖိုက်။ ထိုးထီး. ထိုးထိ။

WHITE-EARED PARADOXURE.

A paradoxure distinguished by white-tipped ears, is not very rare in the Tenasserim Provinces.

Paradoxurus leucorhinus, Blyth.
" *reucotis.*

ကြောင်နားရွက်ဖြူ။ ထိုးထီးအွေးနှါ. ထိုးထိုဝါနှါ။

NEPAL PARADOXURE.

Mr. Blyth has received the Nepal paradoxure from the mountains of Aracan.

Paradoxurus nipalensis, Hodgson.

TENASSERIM ICHNEUMON.

This animal is not the genuine ichneumon, but it belongs to the same family, and has its habits. It is remarkable for devouring snakes.

Urva cancrivora, Blyth.

မြေပါ။ နီးချာဓိရှါ. ထိုးဆံဉ်။

ROYAL TIGER.

Tigers are sufficiently abundant almost everywhere. Twice during my residence at Tavoy they came into the gate of my compound, broke open the door of the goat-house, and succeeded in killing a goat each time before they could be routed. On another occasion, while sleeping in a jungle hamlet, a tiger leaped into a buffalo pen close by the house, and killed a buffalo. They appear to be afraid to encounter a man until they have once entered the contest with him, when all fear ceases ever after. I have encamped in the jungles often, where the tracks of tigers were seen all around in the morning within a few yards of where myself and people had bivouacked, yet they never ventured an attack. But whenever a tiger has once tasted human blood, it ever after seeks it in preference to all other.

A Burman was struck down by a tiger at the head of Tavoy river, and he was seen by his companions to inflict a severe wound on his antagonist with his knife, but was carried off. A few months afterwards, a Karen was killed by a tiger in a village

twenty miles distant; and when the villagers subsequently succeeded in killing the animal, it was found to have been wounded as described by the Burmans. A Karen was killed by a tiger near a village a dozen miles east of Tavoy, supposed to be the same beast that had devoured a man ten miles distant a short time previous. This Karen was carried off after breakfast in the morning while going out alone to his work in the field; and in less than a week from that time a Burman was struck down by a tiger in the middle of the day, not six miles distant, and when there were eight other men in company.

A Karen who was killed by a tiger near the forks of the Tenasserim, was walking with three others in company a couple of hours before sunset, and had a gun on his shoulder. The Karens that lived nearest immediately set traps in the paths that led to their villages, and the animal was soon caught near one of their houses.

On one occasion I reached a lone Karen cabin at dusk, and was surprised to find it barricaded all around to prevent access. On inquiry I found that two men had been devoured by a tiger the day before in the neighborhood close by. It appeared that one man had been carried off, and five others then armed themselves and went in pursuit. After half a day's search, and while on the track, the beast came out boldly on the plain and succeeded in carrying off one of the armed Karens that had engaged in the pursuit.

A few years ago a little body of Karens removed from Yay, and settled on the upper part of Tavoy river; but after losing four or five men in as many different years by the tigers, they have been compelled to descend into the more populous part of the valley.

During the rains of 1854 fifteen Karens were reported to me as having been devoured by tigers in different parts of the Province of Toungoo. In one instance the tiger walked into a zayat and took out a young man from the midst of others who were sleeping there. Casualties have been much fewer since, but I heard of two Burmans losing their lives by tigers in the western part of the Province in 1857.

These few facts, which might easily be multiplied, have been mentioned, because the opinion has gone abroad that Burmese tigers are not dangerous. Dr. Helfer wrote: "They are of quite a different nature from those in Bengal, and probably more afraid of men, than men of them. Accidents very seldom happen to natives, who penetrate daily into untrodden jungle; sometimes quite alone."

Such representations may prove fatal to strangers and persons new in the country, as they already have in the case of Dr. Woodford, who lost his life by a tiger on the Ataran a few years ago

wholly owing to his want of suitable precaution in going away from the boat near evening to shoot a peacock.

Felis tigris,	Linne.
Tigris regalis,	Gray.

ကျားး ခ့ၢမု. ခ့မုၢ် ဘိၢအိၢ် တဲဖၢးလံၢ

LEOPARD.

Leopards are probably more numerous than tigers, and they will sometimes attack man, though he seek refuge in the tree tops. Two Karens were travelling on one occasion in the forests of Maulmain, and when daylight departed, they made little bamboo platforms to sleep on during the night in the branches of a large tree, one on a lower main branch, and the other on an upper large branch. During the night, the man on the lower branch was awaked by what he thought to be a tiger, but it must have been a leopard, creeping up the body of the tree above him. It had passed his branch, and was climbing up to where the other slept. He called out—the man answered, and the leopard was still—not a claw moved; but the sleeping man could not rouse himself, and in a few minutes the leopard rushed up, seized the man in his sleep, and jumping down with him, devoured him at the foot of the tree, regardless of all the noise the narrator of the story could make in the tree above him.

While the inhabitants of a Bghai village were gathered around my zayat one night to preserve it from a jungle fire raging around, loud screams were heard from a few women left in the house close by ; and it appeared that a leopard taking advantage of the absence of the inmates had come under the house, and endeavored to effect an entrance through a hole in the floor.

Felis leopardus,	Schreber.	Apud Gray : List.
" *Pardus,*	Linne ?	
" *varia,*	Schreber.	
" *Panthera,*	Erxleben.	
" *chalybeata,*	Hermann.	
" *antiquorum,*	Fischer.	
" *fusca,*	Meyer.	
" *Nimr.*	Ehrenberg.	
Leopardus varius,	Gray : List.	

ကျားသစ်း ခ့စံၢ်ဝိၢ်

BLACK LEOPARD.

Black leopards, commonly called black tigers, are frequently met with in Tavoy province. They are dangerous beasts. A few years ago a Burman was devoured by one not eight miles distant from Tavoy city.

Felis melas,	Gray.
Felis leopardus, var. melas,	(Blyth.)

ကျားဝဲ ခ့ၢ၁၂၇. ခ့ဝူ

LEOPARD-CAT.

This is the handsomest animal of the tiger tribe in the Provinces. It is spotted with black, like a leopard, on a yellowish ground, and is as large as a small dog. It is very fierce. A Karen whom I knew was attacked by one and his arm shockingly lacerated; but he was saved by his dog, which seized the cat when it attacked his master, and the man and dog together proved too much for it.

ချေသစ်။ ခ့ဘ္ဘ။

TIGER-CAT.

This animal is about the size of a cat, but its colour and markings are exactly that of a tiger. These cats are very abundant in the jungles, and occasionally venture into towns, where they make great havoc among the poultry. Capt. Low called it the "fox-cat."

တောကြောင်။ ထိုးဆာ့. ထိုးဆီ။ တဲ့ဆိုင်ဖား။

BENGAL TIGER-CAT.

This is an entirely distinct species from either of the preceding, all of which I have seen, and is much less common.

Felis Bengalensis.

တောကြောင်။ ထိုးထိုး. ထိုးထိ

NEPAUL TIGER-CAT.

This animal Major Phayre found in Aracan, and Mr. Blyth writes me, "add *Felis macrocelis*, from Aracan;" but he thinks that the above, with the preceding three cats, are probably all varieties of the Javanese tiger cat

Felis nepalensis.

သစ်ကြောင်။ သစ်ကျုတ်။ ကျားကျုတ်။

The following names, then, may be regarded as designating the same species.

Felis javanensis.	Desmarest.
" *minuta,*	Temminck.
" *bengalensis.*	
" *nepalensis.*	

CHAUS.

There is an animal of the tiger tribe which the Karens call the fire-tiger, from the colour of its skin, which is of an uniform red. It is probably the chaus. a large wild cat, sometimes denominated a lynx, that Major Phayre found in Aracan.

Felis domestica.

ကြောင်စက်ခုန် ခ့ာမ့ၢ. ခ့မ့ဉ်

DOMESTIC CAT.

Sir Stamford Raffles says: "Some of the Maylayan, like the Madagascar domestic cats, have a short twisted or knobbed tail." This is a peculiarity that characterizes the Burmese cats.

Felis chaus.

ကြောင်။ မံုယီ။ ဝဉ်မံုယီ။ မံယကီး။

GNAWING ANIMALS.

More than twenty species of *Rodentia*, or gnawing animals, have been found in the country, embracing upwards of a dozen species of squirrels.

TWO-COLOURED SQUIRREL.

The two-coloured squirrel has been appropriately named the giant squirrel, for it is as large as a cat. It is deep black on the back, and whitish yellow below. Its Karen name signifies the yellow-neck, being more particularly yellow on the front part of the neck.

Sciurus bicolor,	Sparrmann.	
" *giganteus*,	M'Clelland MSS.	
" *madagascariensis*,		Apud Gray.
" *macruroides*,	Hodgson.	

GOLDEN-BACKED SQUIRREL.

The golden-backed squirrel which bears a considerable resemblance to the American gray squirrel, is peculiar to the Tenasserim Provinces, and like that is considered very good eating. Its general colour is gray, with a tinge of yellow on the back.

It is described by Mr. Blyth, as "the size of *Sc. Rafflesii*, or measuring about 20 in. long, of which the tail is half; its hair reaching 2 in. or 2½ in. further. General colour grizzled fulvous above, the limbs and tail grizzled ashy (from each hair being annulated with black and pale fulvescent), with an abruptly defined black tip to the latter: under-parts and inside of limbs pale grizzled ashy: in bright specimens, the nape, shoulders, and upper-part of the back, are vivid light furruginous or golden-fulvous, sometimes continued to the tail, more generally shading off gradually towards the rump, and in some but slightly developed even upon the nape and shoulders: whiskers long and black; and slight albescent pencils to the ears, more or less developed."

Sciurus chrysonotus.

ရှင့်။ လံ၂. လံ်ပအိုဉ်။

BLACK-BACKED SQUIRREL.

This is an ordinary sized squirrel, the upper parts grizzled with black, on a golden ground, with a superb bushy tail.

Sciurus atrodorsalis.

ရှင့်။ လံ၂. လံဝ်။

RUSTY SQUIRREL.

The rusty squirrel, Blyth describes as according in size "with *Sc. vittatus*, excepts that the tail is longer and more bushy. Entire upper-part uniformly grizzled, much as in that species, or more especially as in the tail of that species—the tip of the tail being black: under-parts, inside of limbs, fore-paws above, and almost the entire hind limbs exteriorly, together with a broad median line to the tail underneath continued to its black tip, bright furruginous-chesnut; that of the belly bordered laterally with black: whiskers black. Specimen *a*, assigned *Sc. erythræus* in Mr. Gray's catalogue of the mammalia in the British Museum, seems referrible to this."

Sciurus pygerythrus.

ASSAMESE SQUIRREL.

This species differs from the above "in being more fulvescent above and much less so underneath." Major Phayre found it in Aracan.

Sciurus lokroides, Hodgson.
" *assamensis*, M'Clelland.

PHAYRE'S SQUIRREL.

"A beautiful species." says Blyth. "of the size of *Sc. Vittatus*, and nearly of the same colouring above, but the fur longer, and the tail much more bushy, with a well defined black tip. Lower parts bright ferruginous, inclining to maronne on the belly, and continued broadly along the under or hind surface of the tail to its black tip: inside of limbs ferruginous, continued nearly round the hind limbs. and upon all the feet; the fore limbs tinged with dusky externally, above the pale rufous foot; and a broad imperfectly defined blackish band upon the flanks, separating the colours of the back and belly. Length 9 or 10 in. and tail with hair about the same: hind foot $1\frac{7}{8}$."

Sciurus Phayrei.

ရှင့်။ လံ၂. လံဝ်။

BARBE'S SQUIRREL.

This is a beautiful little squirrel, striped with nine alternate lines of black and rusty white, and somewhat resembling the American ground squirrel. It is, however, a new species, abounding in the Provinces of Yay, Tavoy and Mergui.

Sciurus Barbei.

ရှင့်။ လံ၂ပလ့ၢ. လံဉ်လဲ။

BERDMORE'S SQUIRREL.

This is a large striped squirrel, often seen in the southern Provinces.

Sciurus Berdmorei.

ရှင့်။ လံၪလီး. လံဥ်လူ၎။

RED SQUIRREL.

The red squirrel Major Phayre found in Aracan. It is "entirely of a deep rufo-ferruginous colour, rather darker above than below—toes of all the feet blackish, "tip of the tail yellowish white."

Sciurus Keraudrenii, Lesson.
" *ferrugineus,* Cuvier.

ရှင့်နီ။

RED BELLIED SQUIRREL.

This species was sent to Calcutta by Major Berdmore, and is described by Mr. Blyth as having "the upper parts grizzled throughout and the lower parts deep rufo-ferruginous fading on the throat."

Sciurus hyperythrus, Blyth.

YELLOW-BELLIED SQUIRREL.

This is an Aracan species, described by M'Clelland with a yellowish belly, but Blyth says, "the under parts are moderately deep ferruginous, sometimes rather weak." Is this

Sciurus lohriah, Hodgson ?

I find the above in Blyth's catalogue, and also

Hapalomys longicandatus from "the Younzalin hills."

LARGE FLYING SQUIRREL.

We have two or three species of that graceful, elegant group, the flying squirrels. The largest, Blyth regards as a variety of *Pteromys petaurista,* "but the whitish tips to the fur more predominating, imparting a hoary-grey appearance to the whole upper surface, and continued along the tail, the extreme tip only of which is blackish; under parts pure white, or nearly so, in different specimens; and the rest of the colouring much as in the preceding variety.(?) In both, the white tips to the fur predominate in the newly put forth pelage, and disappear to a great extent as the fur becomes old and worn. In the young of the Aracan race, the black extreme points of the fur are much developed.

In the specimens that I have examined the ears are tipped with white.

Pteromys petaurista cineraceus	Blyth.
" *oral,*	Tickell.
" *phillippensis,*	Grey.
Taguan,	Buffon, from Malabar.

ရှင့်ဗျံ၊ ဗျံး၊ ဗျံ၊

SMALL FLYING SQUIRREL.

The small species inhabits the southern provinces, but no one seems to have obtained specimens. I judge it, however, to be identical with the small flying squirrel of Aracan. "A diminutive species about 5 inch. in length, minus the tail, which measures 4½ inches; tarse to end of claws 1⅛ inch. Upper surface bright ferruginous-bay in old specimens, with the membrane, limbs and tail, dusky, and the basal fourth of the latter pale rufous underneath: under-parts dull white, with fur of a somewhat woolly texture: that of the upper-parts dusky except at tip."

Pteromys spadiceus, Blyth.

SHWAYGYEN FLYING SQUIRREL.

Major Berdmore sent a flying squirrel from Shwaygyen which Mr. Blyth regards as a different species from the above, but "nearly related to *Sc. spadiceus.*"

Seiuroptera sagitta, Linn.

Perhaps this is the same as *Sciuroptera Horsfieldii* which Mr. Blyth reports as having received from Shwaygyen.

PHAYRE'S FLYNG SQUIRREL.

Mr. Blyth describes a new species of flying squirrel from Pegu which he has named from the discover, Major Phayre.

Sciuropterus Phayrei.

WHITE-BELLIED RAT.

The rats are scarcely second to the white ants for the mischief they perpetrate. They burrow in the gardens and devour the sweet potatoes, they make their nest in the roofs by day, and visit our barns and larders by night. They will eat into teak drawers, boxes, and book-cases; and can go up and down any thing except a glass bottle. In the province of Toungoo they sometimes appear in immense droves before harvest and devour the paddy like locusts. In both 1857, and 1858, the Karens on the mountains west of the city lost all their crops from this pest; and it is said they are equally destructive occasionally in the eastern districts, but have not appeared for several years. The natives say it is the same rat as the one that frequents houses. Mr. Blyth, however, in the catalogue he has furnished me has *Mus*

robustulus, *M. cinamomeus*, new species, and *M. flavescens* gray, which are probably all included by the Burmese in their *kywet-won-phu*, or white bellied rat.

ကြွက်ဝမ်းဖြူ။ ယူ. ယုန်။

BERDMORE'S RAT.

Of the five or six species of rats furnished Mr. Blyth by Major Berdmore, one of the five new species he dedicated to the discoverer; but he writes me recently that it is perhaps a variety of *M. flavescens*.

Mus Berdmorei.

TOUNGOO MOUSE.

There is a very familiar little mouse in the houses at Toungoo which I never saw in the Tenasserim provinces. It may be frequently found under the table picking up crumbs. It is probably the species sent from Shwaygyen by Major Berdmore, and named

Mus nitidulus, Blyth.

WATER RAT.

There is a water rat throughout the country which burrows on the banks of the streams, and takes to the water when pursued; but Mr. Blyth writes me he doubts our having a species of *Arvicola*.

ရေကြွက်။ ယူထံ. ယုန်ထံ။

FIELD MOUSE.

The Karens describe a field mouse with the same habits as the field mouse of Europe. According to Karen astronomy, the north star is a mouse, creeping into the proboscis of the elephant, as they call the constellation of the Great Bear.

The mouse of our English Bible was probably the jerboa, an animal with the habits of our bamboo rat, and like that eaten by the inhabitants of the country where it is found.

This is probably the species Mr. Blyth had from Shwaygyen that he named

Mus peguensis, Blyth.

လယ်ကြွက်။ ယူ. ယုန်ဥဉ်ငါ။ ယုန်ကဗီ။

BAMBOO RAT.

This animal, which burrows under old bamboo roots, resembles a marmot more than a rat, yet it has much of the rat in its habits. I one night caught a specimen gnawing a cocoanut, while camping out in the jungles.

Rhizomys, sumatrensis, Gray.

Mus sumatrensis,	Raffles.
Hypudeus de Sumatra.	Temm.
Nyctocleptes Dekan,	Temm.
Spalax javanus,	Cuvier.
Rhizomys chinensis,	Gray apud Schinz.
" *cinereus,*	M'Clelland.
" *Decan,*	Schinz.

ပွေး။ ခါ့ ခီ။ ခဲ။

SHORT-TAIL BAMBOO RAT.

There is a second species which Mr. Blyth says differs from the above, "In being much less robust, having a much shorter tail, and a dense coat of fine soft fur instead of a thin coat of bristly fur."

Rhizomys castaneus.

SMALL BAMBOO RAT.

The Bghais call the bamboo rat *Khai*, and they say there is the Bamboo Khai, the Reed Khai, the Maranta Khai, and the Wie, a very small species of the same tribe.

Rhizomys.

ခဲဟိး မုန်း ခဲဟိး ဒီ။ ခဲဖြီ။ စုန်။
ခဲက။ ဗီ။ ဝံ။ ၁အဲ့ဂ်။ ဝံ၊ ပဲ၊ စူး

LARGE PORCUPINE.

A large porcupine is not uncommon, but the precise species is not known. It is probably identical with one of the Malay species. The one found in Aracan is the common Indian species, and ours may possibly be the same.

Histrix bengalensis, (*Arracan.*)

ဖြူ။ ဆ၂ဂိ၊ဆူ၂. ဘူဂ်။ ဘူး။

SMALL PORCUPINE.

There is a small porcupine in the country, which does not appear to have been discovered in Aracan. Mr. Blyth suggests

Atherara sp.?

၁ဘၢ ဘါ။ ၁ဘဲ။

PEGU HARE.

A hare is not uncommon in Pegu and Toungoo, and from a specimen sent to Calcutta by Major Phayre, it proves to be a new species. Mr. Blyth describes it as:

Lepus peguensis, nobis, *n. s.* Very similar to L. *ruficaudatus*. Is. Geoffroy, of Bengal, and all Upper India, Assam, &c.; but at once distinguished by having the tail black above, as in the generality of the genus. The upper-parts are of the same colour as

in the Bengal hare, but contrast directly with the pure white of the belly, instead of passing to it through fulvous as in the other; and the limbs also shew but a slight fulvous tinge, with white hairs intermixed, especially on the hind-limbs where the white predominates: the chin and throat (in fact the fur over the whole lower jaw) are conspicuously white; and the short sparse hairs on the outside of the ears are whitish,—except in front, and also the tip posteriorly, whereon is a large blackish terminal patch. The fur of the upper-parts is pale dusky-grey at base, then black, and finally bright fulvous brown with black extreme tips: towards the tail above is a strong tinge of ash-colour. Size, proportions, and structure, as in the common hare of all Upper India.

RABBIT.

Rabbits have been introduced, and when well tended they breed very abundantly.

Lepus cuniculus.

ဖိုးကောင်း

TOOTHLESS ANIMALS.

The *Edentata*, or toothless animals, have three representatives in the country.

PANGOLIN.

The scaly ant-eater is not very rare here, and so far as I can judge, it is the same species as the one found in Malacca, though there is not a perfect correspondence. It has not the difference in colour at the end of the tail which is characteristic of the Aracan species.

Manis javanica,	Desmarest.
" *pentadactyla,*	Lin. apud Raffles.
" *aspera.*	Sundeval.
" *quinquedactyla,*	Raffles, apud Gray: List.

သင်ခွေးချပ်း ယူ-ယိုယူ. ယိုဟိန် ယိုဝန်

WHITE SCALY ANT-EATER.

There is a species of pangolin in Aracan with one half of the tail of "a glaucous-white colour." The Bghais describe a second species small and thin, which they call *Yo-bepheu*, or "small thin pangolin."

Manis leucura.

ယိုဘုန်ဗား

THICK-SKINNED ANIMALS.

Six species of *Pachydermata*, or thick-skinned animals, inhabit our forests.

ELEPHANT.

Wild elephants are numerous in the interior, and their haunts readily traced by the mutilations of the bamboo and young trees; but they usually avoid settlements. I have often come upon them on the wild, lone banks of the Tenasserim, and have heard their blowing and heavy tramp around my booth by the head waters of Tavoy river. They seem uniformly to avoid the face of man unless wounded by him, but an enraged elephant is a most formidable foe, from which in an open country it is almost impossible to escape. Karens tell us that if one be wounded and not killed, he immediately retreats, but as soon as he feels the smart of his wound, he turns and rushes upon his antagonist with terrible fury. One of the best Karen marksmen I ever knew, perished in this way. He shot and wounded but did not kill the elephant, which immediately ran away. His companions, knowing the habits of the animal, scattered themselves; but this man kept his ground in confidence that he would be able to reload, and renew the attack when it returned; but before his gun was loaded, the enraged elephant was upon him, and instantly trampled him to death.

Elephas indicus.

ဆင်။ ကဆူ. ကဆီ။ ကဆါ။

WILD HOG.

Whole droves of wild hogs come down upon the Karen paddy fields, and were they not guarded night and day, they would destroy every thing before them. It is a small blackish species exceedingly numerous. Mr. Blyth suggests that it may be a new species, like the hog of the Andamans.

Sus Andamanensis,	
Sus indicus,	Schinz.
Sus Scrofa,	Linne, apud Elliot.
Sus vittatus,	Schlegel.
Sus cristatus.	Wagner, apud Schinz.

တောဝက်။ ထိ၄. ထိ၃။ ထီ၃။

SINGLE-HORNED RHINOCEROS.

The common single-horned rhinoceros is very abundant. Though often seen on the uninhabited banks of large rivers, as the Tenasserim, they are fond of ranging the mountains, and I have frequently met with their wallowing places on the banks of mountain streams, two or three thousand feet above the plains.

They are as fond of rolling themselves in mud as a hog, or a buffalo. The Karens when travelling have quite as much fear of a rhinoceros as they have of a tiger. When provoked, the rhinoceros, they say, pursues his enemy most unrelentingly, and with indomitable perseverance. If to escape his rage the huntsman retreats to a tree, the beast, it is said, will take his stand beneath the tree, for three or four days in succession, without once leaving his antagonist. There are seasons when the rhinoceros is very dangerous and ferocious, attacking every thing that comes near its haunts, yet it is believed the stories related of them are exaggerated.

On one occasion while descending the upper Tenasserim on small rafts, a rhinoceros was started on the river bank, which ran down the side of the river at a buffalo gallop for about a quarter of a mile, to a ford, with which it appeared to be well acquainted, where it crossed over. Just as it reached the opposite bank, a Karen on a raft near shot at it, and apparently hit the animal, but it rushed into the jungle and was seen no more though we encamped for the night a short distance below, on a small island that was manifestly the resort of the rhinoceros.

A gentleman in Aracan procured a single-horned rhinoceros from the Aracan jungles, and presented it to a friend in Calcutta. In the course of events it passed out of that gentleman's hands, and was ultimately sold to the Zoological Gardens for the sum of one thousand pounds sterling, where it still lives. Rhinoceros trapping, then, might prove no bad speculation.

In the Latin Vulgate the rhinoceros is put where unicorn is read in the English Bible; and a similar rendering has been adopted in several Indian versions, though unsupported by any philological considerations. The Hebrew name *reem* bears no resemblance to the name of the rhinoceros in any of the countries adjacent to Judea. In Persian it is called *karg*.

Rhinoceros	*unicornis*,	Linn.
"	*indicus*,	Cuvier.
"	*asiaticus*,	Blumen.
"	*inermis*,	Lessor.

ကြံဆင်း ဆန့်ဒျအာဒ့်. တၢဒိဉ်ဒိဉ်ခစိးပှၢ် ဖြဉ်ခၢဉ်ခဉ်

DOUBLE-HORNED RHINOCEROS.

The double-horned rhinoceros is not uncommon in the southern Provinces. It differs from the other species not in its horns only, but also in its skin, which is as smooth as a buffalo's, while in the single-horned it is disposed in immense folds all over its neck, shoulders, haunches, and thighs; so that it looks as if harnessed in its own natural tackling; and the Karens call it the "coat of mail rhinoceros." The horns of both species are bought by the Chinese for medicine. "From the earliest times," says a

recent writer, "the horn of the Indian rhinoceros has been regarded either as an antidote against poison, or as efficacious in detecting its presence, as well as useful in curing diseases;" and the Chinese seem to retain the ideas of antiquity on this subject, as they do on every other.

ကြီရှေ့ဝ်း ဆၢဒိၢဖျာ. တၢဒိဉ်ခိဉ်ဝဘျ။

JAVANESE RHINOCEROS.

The southern Karens say there is a third species of rhinoceros in the jungles, which is distinguished from both the others by its skin being covered with small tubercles; and above all by its eating fire! Wherever it sees fire, it runs up, and devours it immediately!

I once lost my way amid the hills and valleys of Palaw and Katay; and on obtaining a Karen who lived in that region for a guide, he laid special charges on every member of the party to follow him in silence, for a fire-eating rhinoceros had been recently seen, and it always came to noises, instead of fleeing from them as most animals do. It is further described as excavating a habitation for itself on the mountain side, in which it remains during the principal part of the dry season, and wanders about during the rains. Amid the marvelous there is sufficient truth in this description to enable us to recognize it as the Javanese rhinoceros, and its supposed fire-eating propensity brings to mind a striking resemblance to the black African rhinoceros. *Rh. Africanus.* "This animal appears to be excited by the glow of a fire, towards which it rushes with fury, overturning every obstacle. It has been known to rush with such rapidity upon a military party lodged among the bush covering the banks of the Great Fish river, that before the men could be aroused, it had severely injured two of them, tossed about, and broke several guns, and completely scattered the burning wood."

The Bghais call the rhinoceros the "great-footed horse," but they are rarely found among them. Many of their young men never saw a rhinoceros, and to which species, the one occasionally found belongs, is uncertain.

Rhinoceros Sondaicus, *Cuvier.*
" *javanensis,*
" *javanus.*

ကြီး ဆၢဒိၢမ့ၢ. တၢဒိဉ်ခိဉ်မ့ဉ်အူ။

MALAY TAPIR.

The tapir has been long known to exist in the southern provinces, but has never been heard of north of the valley of Tavoy river. It has been known, however, principally from native description that the animal could be no other than the tapir. It is believed that none have ever been killed or captured in the

Provinces, except one that was procured from a Karen by a writer of the late Major Macfarquhar at Tavoy. It was a very inoffensive animal, and became as much domesticated as a cat. It followed its master around the compound like a dog, but looked as unseemly as a hog. It differs in no respect from the descriptions of the Malay tapir, has the same white blanket-like appearance on its back, and like that, frequents the uplands. Though seen so rarely, the tapir is by no means uncommon in the interior of Tavoy and Mergui provinces; I have frequently come on its recent foot-marks, but it avoids the inhabited parts of the country.

Tapirus	*malayanus,*	Raffles.
"	*indicus.*	F. Cuvier.
"	*sumatranus,*	Gray.
"	*bicolor,*	Wagner.

တရူး ဆၢကွၤ့ တၤကျိၤ

SOLID-HOOFED ANIMALS.

Two species of *Solidungula,* animals with undivided hoofs, have been introduced.

HORSE.

The horses of Burmah and the Shan country, which are imported into the Provinces, are small ponies, resembling the little Spanish horses that run wild in Missouri, and the other western parts of America.

Equus caballus.

မြင်း ကဘ့ၢ. ကခ့ဉ်း မြဉ်း

ASS.

Asses are said to be common at Ava, where they are introduced from the north, and a solitary specimen is occasionally seen in Pegu.

Equus Asinus.

မြဲ·မြည်း ကခ့ၢယိၤ့ ကခ့ဉ်ယိၤ

RUMINATING ANIMALS.

Eleven species of *Ruminantia,* animals that chew the cud, are known in British Burmah; and it is not probable that any remain to be discovered.

CHEVROTAIN.

This little deer, about the size of a large hare, is often seen crossing the traveller's path in the interior; but it is by no means

so abundant as at Penang, where a dozen may be obtained for a dollar. According to Linnæus, it is a species of the same genus as the musk deer, but it is not known to produce musk.

Tragulus Kanchil,	Gray : List.
Chevrotain adult,	Buffon.
" *de Java,*	"
Java Musk,	Shaw.
Moschus Palanok,	Marsden.
Moschus Kanchil,	Raffles.
Pelandok,	"
Moschus fulviventer,	Gray.

ယုံ။ ပဒဲ၊ ပဒဲ။

BARKING DEER.

The barking deer is more abundant and more universally diffused than any other species. It is seen occasionally on the hill back of Maulmain, often in the suburbs of Tavoy, and is abundant at Toungoo. It is very appropriately named. for its bleat, which is constantly heard in the jungles after night fall, is very like the barking of a dog.

It uses its horns with great effect when brought to bay, and according to a Karen fable, the tiger will not attack it. In ancient times, the story goes, when all animals had the power of speech, the tiger said to the barking deer, "Oh! barking deer, what is the use of thy horns? It seems to me they would be in my way." The barking deer answered: "A single push of my horns will make the eye of my antagonist start from its socket." On hearing this the tiger was afraid, and never after attempted to devour the barking deer.

Styloceros Muntjak,	H. Smith.	
Chevreuil des Indes,	Allamand.	
Cervus Muntjak,	Zimmerman, apud Horsf.	
" *vaginalis,*	Boddaert,	"
" *moschatus,*	Blainville,	"
" *subcornutus,*	"	"
" *moschus,*	Desmarset,	"
" *Philippinus,*	Ham. Smith.	
" *aureus,*	"	
" *albipes,*	Fred. Cuvier.	
" *Ratwa,*	Hodgson,	
Muntjacus vaginalis,	Gray : List.	

ချေ။ဂျီ။ ခံ၊ဘၢ့၊ တကျာ်ခိုင်။တၢဟိ။ တခံ။

HOG DEER.

This species appears to be confined to the plains. It abounds

north and east of Maulmain, and on the large islands south of Tavoy; but it is not found north of the city, nor eastward among the hills, nor in the valley of the Tenasserim, but is found again on the plains of the Sitang.

They are often hunted by persons in companies after dark, who go into the plains where they are found, beating tin kettles, and ringing bells, and gongs, which is said to bring the animals to a stand with astonishment, so that the huntsman can walk up, and shoot them at his convenience.

Hyelophus porcinus, Blyth.
Cervus porcinus.
ဒရယ်။ တၤယူ၎ ထရဲ့ ကြိ၎။

RUSA DEER.

The rusu deer is the one which Europeans call elk. It is usually found among the hills, and is quite abundant in the interior.

Rusa hippelaphus.
ဆတ်။ ဆၢဒီၤ. တၤဒီၤ။ ထီခိုဉ်။ ခၢဉ်။

BROW-ANTLERED RUSA.

This species has not been seen south of Maulmain, but it not improbably exists in Tavoy Province, for the Karens say there are two species of rusa, and I have seen on the mountains parts of horns that appear to belong to this species. Mr. Blyth thought, from the accounts furnished him, that this was an undescribed species, but Major Phayre told me that he had satisfactorily identified it by its horns with the brow-antlered rusa of Assam. More recently Mr. Blyth writes, "It appears to be a different race."

Panolia acuticornis, Gray: List?
Cervus frontalis, M'Clelland?
Cervus lyratus, Schinz?
သမင်။ ၁မး. ၁မ၇

GOAT-ANTELOPE.

The goat-antelope is confined to the mountains, and was formerly characterized as "a wild sheep, or goat."

Major Phayre first found it in Aracan, and subsequently obtained specimens of another species in Maulmain. It is common also on the mountains of Toungoo.

Næmorhedus ruber, Aracan species.
Næmorhedus sumatrensis, Hamilton Smith.
Kambing utan, Marsden.
Antilope sumatrensis, Pennant, apud Raffles.
Cambtan, Fred. Cuvier.
Antilope interscapularis, Lichtenstein, Schinz.
တောဆိတ်။ ရှာ။ (*Aracan.*) ဆၢယီၤ. တၤဝး ရှုဉ်

SHEEP.

Sheep have been introduced, but they do not thrive on the Tenasserim coast. Major Macfarquhar, who formerly owned the only sheep in the province of Tavoy, during one rainy season, lost forty out of an hundred and fifty. At Maulmain they appear to do a little better, and at Thayet-myo, where there is less rain, they are said to do well.

Ovis aries.

ထိုး။ ဒိ၂ ဒိ။ ဝၢဉ်။

GOAT.

Goats thrive well, and are valuable stock in this country, both for their milk, and for the flesh of their young kids.

Capra Hircus.

ဆိက်။ ဘ့၂. စဲဝ်တဲးလဲး။ ပဲးကိးလဲး

GAUR.

This is a fine large animal, with a bison-like appearance, a wild, fierce beast, of which the natives are much afraid. It never approaches human habitations, but I once came on a large drove descending the Tenasserim, that had come down to the water for drink. They gazed a minute at the rafts, and then turned rapidly into the jungles.

Bos gaurus,	Ham. Smith.
" *gour,*	Trail.
Bison gaurus,	Ham. Smith.
Bos aculeatus,	Wagler.
Bison,	Low.
Bos (Bibos) cavifrons,	Hodgson, apud Elliot.
" *frontalis,*	Lambert, apud Gray.

ပြောင်။ ဆ၂တၢ့နိၢ့. လါဖံး။ တၢဘိနၢၢ ထံ

WILD OX.

A wild ox, or wild cow, as it is often called, is frequently seen in large droves all over the uninhabited regions of the Tenasserim Provinces. It bears a considerable resemblance to the gayal in shape, but differs from it in colour, being red and white. At a distance a herd looks very much like a drove of English cattle. Once on coming out of a thick jungle into the open ground, I found myself in the midst of a hundred of them, and they appeared so tame, that my first impression was they were domestic cows; but they soon bounded away like deer, and dissolved the illusion. Mr. Blyth writes me that it is

Bos sondaicus.

နိုင်။ ဂိၢဖံးမံၢ။ ဆ၂နၢ့ၢမံၢ့-ဒိၢဃ့်မံၢ့.

ZEBU OX.

The zebu, or Indian ox, with the large hump on its shoulders, appears to have been the most usually domesticated ox before the English took possession of the country.

Bos indicus.

နွားဒီ။ ဝိုဘံ့. ဝိုဖံး။ ကျိုဒ်။ ဝိုဒ်။

ENGLISH OX.

Europeans have introduced the English breed of oxen into the Provinces.

Bos taurus.

BUFFALO.

There are great numbers of wild buffaloes in the jungles of the south, which are supposed by the natives to be indigenous; but they are more probably of the domestic race that have run wild, like the wild horses of America.

There is perhaps no domesticated animal in the world, concerning which learned men, in Europe and America, are so profoundly ignorant, as the buffalo. From misapprehension of the character of the animal, they have very generally concluded that the unicorn of the English scriptures was the buffalo. Gesenius, Hengstenburgh, and De Wette, in Germany, render the word by "der Buffel;" and Stuart, Robinson, and Noyes, in America, say buffalo. "The oriental buffalo," observes one, "appears to be so closely allied to our common ox, that without attentive examination, it might be easily mistaken for a variety of that animal." The Karens say, a sheep is "a kind of a goat;" and by a parity of reasoning, a buffalo is a kind of an ox; but in no other way. The buffalo, with its black and almost hairless skin, "huge horns," and clumsy body, affords a strong contrast to the red hairy skin, short horns and more elegant appearance of the common ox.

Barnes says, it is "an animal which differs from the American buffalo only in the shape of the horns and the absence of the dewlap," It is well known that the American buffalo is not a buffalo, but a bison, and the two differ from each other much more than either from the common ox; and according to modern naturalists, the difference between them is not merely specific, but generic—the buffaloes forming one genus, and the bisons another. According to Swainson, the buffaloes have "a small dewlap on the breast," but they differ from the bisons among other things in having "no hunch on the back," no very "long hair under the jaw and throat," and no mane upon the shoulders. The buffalo too, has one pair of ribs less than the bison, and is altogether a widely different animal.

Barnes remarks again of the buffalo, that it "has been recently domesticated," but in the laws of Menoo, the great Hindoo legislator, who is supposed to have written about the time of David, domesticated buffaloes are often mentioned. It would appear that in his days, they were used to draw carts; for in one place he says: "If a man shall be driving a cart, and his bullocks or buffaloes start and run against a house, he shall not be held in fault. If he run against the steps, let him put up new ones. If he run against the balustrades, let him replace them; there is no fine. If the cart shall not run against the house, but the bullocks, the buffaloes, the yoke, or other things belonging to the cart, there is no fine, nor if a plough shall run against a house."

Bubalus Arnee,	Hamilton Smith.
Bos indicus,	Plinius.
" *bubalus,*	Brisson, Linn.
Bubalus ferus indicus,	Hodgson, apud Gray: List.
" *Buffelus,*	Gray: List.

ကွဲ။ ပနှါ. ပနှါ။ ပနှဲါ။

WHALE TRIBE.

Five species of *Cetacea*, animals of the whale family, are found on our coasts.

PORPOISE.

A species of porpoise is very abundant along our shores, and in the rivers, occasionally, as high as tide-waters reach. It is probably the same porpoise as the one in the Malay waters, for that species extends to the Malabar coast.

Mr. Benjamin wrote me from the Mergui Archipelago: "There are two species of porpoises, one with a long, the other with a blunt snout."

Delphinus plumbeus,	Dussumier.
" *malayanus,*	Lesson.

လသိုင်။ ယၢလိၤခိၢ-ယၢဖှန္ဒၢမျၢ. ညှန်လူၤခိန်။ ညှန်တိၤခွ

RORQUAL.

The rorqual is the largest of the whale tribe, and is distinguished from the common Greenland whale by having a fin on his back. The bones of an individual stranded on the Aracan coast were sent by Major Sparks to Calcutta, and the bones of the lower jaw measured twenty one feet in length.

Balăenoptera.

ငါးဆင်။

WHALE.

The bones of a whale were found on the Chittagong coast, in 1842, but the genus was undetermined, and the bones of a smaller species were also forwarded from Aracan by Major Sparks,

which probably belonged to the common whale. Mr. Benjamin found two species of whales in the Mergui Archipelago; and Capt. Lloyd named a bay among the islands "Whale Bay," from the circumstance he says, "of its being resorted to by numerous whales, and its being the only part of the coast where I have seen them."

Balŏena.

ငါး ဝှဲ

SEA COW.

The dugong, or sea-cow, is found in the waters of the Mergui Archipelago. It is said to resemble "at once the whale, the porpoise, and the seal"; and again as having human mammæ, a face like that of a quadruped, the tail of a fish, and sheds tears and utters a plaintive human cry when captured." The Australian Argus says: "Its flesh is not only palatable and nutritious, but actually curative in a very high degree, and is particularly good for all forms of scrofula, and other diseases arising from a vitiated condition of the blood. In its fresh state it is something like tender beef, and salted, it very nearly resembles bacon. But the principal value of this animal consists of the oil which is extracted from it in large quantities. An intelligent medical man, in long practice in Brisbane, has found that this oil possesses all the virtues, and more than all, of the celebrated cod-liver oil of the pharmacopœia. When properly prepared, the the dugong oil is almost entirely free from all unpleasant odour or flavour. Each full grown animal will yield from eight to twelve gallons of the oil." The cylinders seen in the ear lobes of the Selungs, are often made from the tusks of the animal.

Halicore Indicus,	F. Cuvier.
Dugon,	Buffon.
Trichechus Dugong,	Erxleben.
Halicore cetacea,	Illiger.
Halicore Dugong,	Cuvier, apud Raffles.
Halicore Tabernacularum.	Rüppell.
Dugungus marinus,	Tiedemann, apud Schinz.
Dugong,	of the Selungs.

Ornithology.

"The *dodo* may possibly be found there—and the *cassowary* may perhaps be met with," observed Dr. Pearson in his official charge to Dr. Helfer, when the latter was about to proceed on his scientific mission to the Tenasserim Provinces. The dodo and cassowary were about as probably inhabitants of Burmah as the phœnix and ostrich; but the remark shows how little was known of our ornithology fifteen or twenty years ago. Indeed, it was quite a blank uniuntil Major Phayre, then in Aracan, commenced his collections, and Mr. Blyth entered on his duties as curator of the Museum of the Asiatic Society of Bengal. When I went over with the birds of Burmah with Mr. Blyth in 1854, I found eighty-eight species in the Museum, represented by specimens sent up by Major Phayre, and these were but a fraction of the number he had furnished, many having been replaced by fresher specimens from more recent contributors. Since that period, I find more than fifty specimens, acknowledged in the Journal, as having been received from him on one occasion, in Pegu. The next largest contributors from Burmah are Rev. Mr. Barbe, Capt. Abbot, Mr. O'Riley, Major Berdmore, and Major Tickell.

When Mr. Blyth commenced his labours in India, the nomenclature of Indian birds was literally a chaos; and it is difficult to adequately estimate the value of his labours in reducing it to order, as he has done in his catalogue. Every bird had nearly as many names as there were ornithologists to describe it. For instance, one person has a book in which he finds a bird described as the argala heron, *ardea argala*; another has one that speaks of the doubtful heron, *ardea dubia*; a third reads of the migratory argala, *argala migratoria*; a fourth of the mirabon ciconia, *ciconia mira bon*; a fifth of the naked forehead ciconia, *ciconia nudi frons*; and a sixth of the argala leptoptilos, *leptoptilos* argala. Each one has reason to believe that he has a separate

bird; but Mr Blyth comes in, examines the several descriptions with the living birds, their skins or their drawings, and decides that they are not six birds, but one, the common adjutant; and that the six names are synonymes. This illustrates the value of Mr. Blyth's labours for the birds of India, and so far as they pertain to the birds of Burmah, they will be found embodied in the following pages, the synonymes as well as the identification of each bird being given on his authority.

CLIMBING BIRDS.

The *Scansores* or climbing birds, as restricted in Mr. Blyth's catalogue, embrace in British Burmah only the parrakeets and lorikeets.

PARRAKEETS.

Burmah has neither cockatoos, *Cacatuinaĕ*, nor maccaws, *Arinaĕ*, but it has five handsome species of parrakeets.

BLACK-BILLED PARRAKEET.*

Immense flocks of parrakeets may be seen simultaneously descending upon the rice fields, where persons have to be in constant attendance to drive them away during the season of harvest. The bill of the female is black, and the natives say, always continues so; but Mr. Blyth remarks: "In a presumed female observed in captivity, the upper mandible changed from black to coral red, when the bird was about eighteen months old."

Palæornis barbatus,	Swainson.	
Psittacus "	Gmelin.	
" *pondicerianus*,	"	
" *borneus*,	"	
Psittacus bimaoulatus,	Sparrman.	
" *javanicus*,	Osbeck.	
" *Osbeckii*,	Latham.	
" *mystaceus*,	Shaw.	
Palæornis nigrirostris,	Hodgson	(female.)
" *modestus*,	Fraser	(female.)

ကုလား။ ဒဲ့ယေ-ဒဲ့ယေကၽ. ဒီယဝ်။

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* The generic native names for all the parrakeets are

ကြက်တူရွေး။ ထိၵကျ်၊ ထိဉ်ကံဉ်။

ROSE-RINGED* PARRAKEET.

Another parrakeet that comes in smaller campanies which has not the habit of simultaneous descent is often seen in the rice fields.

Palæornis	*torquatus,*	Blyth.
Psittaca	*torquata,*	Brison.
Psittaca	*Alexandri,*	Latham, var. B.
"	*cubicularis,*	Hasselquist.
"	*docilis,*	Vieillot.
"	*steptophorus,*	Desmarest.
Sulphur	*Parrakeet,*	Shaw.

ကျောကျုံတိ။ ထိုးကျဲးထုံ. ထိုင်ကံဉ်ဘိ။

ALEXANDRINE PARRAKEET.

This soldier-like parrakeet with scarlet epaulettes and collar is found in Provinces Amherst, Pegu, and Aracan, but I never saw it in Tavoy or Mergui. It is the bird that was sent to Alexander from Ceylon; and hence its specific name. Some critics think that parrots were shipped by Solomon's fleet rather than peacocks; but they appear to have been unknown in Europe till the days of Alexander, which would hardly have been the case, had Solomon introduced them into Judea seven centuries before.

Palæornis	*Alexandrinus.*		
"	*Alexandri,*	Edwards.	
Psittacus	*Alexandri,*	Linn.	
"	*eupatria,*	"	the female.
Psittaca	*ginginiana,*	Brisson.	
"	*guinneensis,*	Scopoli.	
"	*Sonneratii,*	Gmelin.	
Palæornis	*nipalensis,*	Hodgson.	

ကျေးဖောင်းခါး။ ထိုးခြိုး. ထိုင်လိုး။ ထဉ်လိုးကွီးကိဉ်။

BENGAL PARRAKEET.

The Bengal parrakeet has been found in both Aracan and Pegu. It has been called the "red-headed parrakeet."

Palæornis	*cyanocephalus.*		
Psittacus	"		
"	*flavitorquis,*	Shaw.	the female.
"	*annulatus,*	Kuhl.	
Palæornis	*flavicellaris,*	Franklin.	
Psittaca	*bengalensis,*	Brisson.	

* Ringed, *not* Winged.

Psittacus	*erythrocephalus,*	Gmelin.
"	*ginginianus,*	Latham.
"	*rhodocephalus,*	Shaw.
"	*narcissus,*	Latham.

ကုလား။
ကျေတမါ။ *Arracan.*

NEPAL PARRAKEET.

A parrakeet common in Nepal where it was found and described by Mr. Hodgson, was supposed to be confined to the "Sub-Himalayan region exclusively", but it was recently shot in Pegu by Major Phayre.

Palaĕornis schisticeps,	Hodgson.
Conurus himalayanus ?	Lesson.

RED-RUMPT LORIKEET.

This is one of the smallest birds of the parrot tribe, with a green body and a red rump. Its child like notes are among the most familiar sounds in the interior during the declining day. Its Burman name signifies "headlong," from its habit of suspending itself from the tree, head-fore-most like a bat.

Loriculus vernalis.		
Psittacus	"	
"	*gulgulus,*	Horsfield.

ချန်းတိုး။ (ကျေးသတား။ *Arracan.*) ထိ၂ကျံ၂ဝဲ၇.
ဒဲ၇ယ၊ကၥဒ၂၇နါ. ထိဉ်ကံဉ်ဆွဲ။

RAPACIOUS BIRDS.

The *Raptores*, or rapacious birds, have numerous representatives in Pegu and the neighboring Provinces. We have falcons, cuckoo hawks, gleds or kites, snake eagles, harriers, hawks, goshawks, eagle-hawks, eagles, buzzards, ernes or fishing eagles, and vultures; besides the nocturnal tribe.

KESTRIL.

"The commonest bird of prey in England and France," the kestril, is not less common in Burmah. The Burmese call it the "dove-hawk.

Tinunculus	*alandarius,*	Viellot.
Falco	"	Brisson.
"	*tinnunculus,*	Linnæus.

Falco	*interstinctus,*	M'Clelland.
"	*fasciatus,*	Retzius.
"	*brunneus,*	Bechstein.

ကျိုးသိန်း။ လံဝှာ့. လံလှဲ့ဝဲ့. လံဝိဉ်တ့။ လံလီးရှူး

BENGAL FALCON.

The Bengal falcon is named by the Burmese "peacock-brains," from the persuasion that it feeds on the brains of the peacock.

Hierax eutolmus,	Hodgson.
" *bengalensis,*	Blyth.
Bengal Falcon,	Latham.

ဒေါင်းဦးနှောက်။

MALAY FALCON.

The Malay falcon was found by Dr. Helfer at Mergui.

Hierax fringillarius.	
Falco "	Dropiez.
Hierax malayensis,	Strickland.
Falco cærulescens.	

SPOTTED FALCON.

The spotted falcon has been found in the country.

Hypotriorchis severus,		Boie.
Falco,	"	Horsfield.
"	*Aldrovani,*	Reinwart.
"	*guttatus,*	C. R. Gray.
"	*rufipedoides,*	Hodgson.

RED INDIAN FALCON.

Mr. Blyth showed me the "red Indian falcon," or "royal falcon," received from Burmah.

Falco peregrinator,	Sundevall.
" *shahin,*	Jerdon.
" *sultaneus,*	Hodgson.
" *ruber indicus,*	Aldrovand.

RED FOOTED FALCON.

Mr. Blyth suggests that we have probably the "red-footed falcon," *falco rufipes,* a species common in southern Europe, and seen occasionally in England. Also, *tinnunculus cenchris,* Gould, an insectiverous species, seizing its prey on the ground.

INDIAN CUCKOO-HAWK.

The Indian cuckoo-hawk has been forwarded to Calcutta from Burmah.

Baza lophotes.	
Falco "	Temminck.
Baza syama,	Hodgson.
Falco et Lepidogeys Lathami,	Grey.
Lophotes indicus,	Lesson.

MERGUI CUCKOO-HAWK.

Mr. Blyth received a new species of Pern or cuckoo-hawk from Mergui. "Colour rich dark hair-brown above: crest simple, broad, two and a half inches long, the feathers composing it white-tipped, as are also those adjacent. Lower parts white, with dark central streaks or tears on the breast and flanks."

Pernis brachypterus,	Blyth.

RED-NECKED PERN.

Another pern is nearly related to the "honey-buzzard," *Pernis apivova.*

Pernis cristata,	Cuvier.
Falco ptilorhynchus,	Temminck.
Pernis Ellitti,	Jameson.
" *maculosa,*	Lesson.
" *torquatus,*	"
" *ruficollis,*	"
" *atrogularis,*	"

KITE.

The Indian falcon of Lathan is now classed with the kites.

Elanus melanopterus,	Lev.
Falco "	Daudin.
" *sonninensis,*	Latham.
" *vociferus,*	"
" *clamosus,*	Shaw.
Elanus caeius,	Savigny.
Petite Buse Criarde,	Sonnerat.
Kotla Falcon,	Latham.
Indian Falcon,	"

SNAKE-EAGLE KITE.

A large kite first identified by Major Phayre in Aracan, belongs to the tribe of snake-eagles; and has been named "spotted hawk," "Barred Haĕmatornis," and "Bacha Eagle."

Haĕmatornis cheela,	Gould.
Falco,	Latham.
Haĕmatornis undulatus,	Vigors.
Circaetus nipalensis,	Hodgson.
Haematornis bacha,	Franklin & Sykes.
Buteo bacha,	"
Falco albidus,	

ဒေါင်စွန်။

PIED HARRIER.

The pied harrier, a black and white bird, is not uncommon.

Circus melanoleucos.	
Falco "	Pennant.

သိန်းကြား။ လံဖောပှူဒ်. လံဝ်စးဖါပြူး။ ?

MARSH HARRIER.

The marsh harrier common in Europe and Africa is not uncommon in Burmah. It has been called the "rufous-eared falcon," and in Bengal the meadow kite.

Circus aeruginosus,	Gould.
Falco, "	Linn.
" *rufus,*	Gmelin.
" *arundinaceus,*	Bechstein.
Accipiter circus,	Pallas.
Circus palustris,	Brisson.
" *variegatus,*	Sykes.
" *rufus,*	Lesson.
" *Sykesi,*	"
Rufous-eared Falcon,	Latham.

MONTAGU'S HARRIER.

Another common European bird in Burmah is "Montagu's harrier".

Circus cinerascens,	Gould.
" *montagui,*	Vieillot.
Falco cineraceus,	Montagu.

TEESA HARRIER.

Mr. O'Riley found the "Teesa harrier" at Amherst.

Poliornis teesa,	Hardwick.
Circus "	Franklin.
Astur hyder,	Sykes.
Zuggun Falcon,	Latham.
Polionis fasciatus,	Lord Hay.

SWAINSON'S HARRIER.

Mr. Blyth has had Swainson's harrier sent him from Burmah.

Circus Swainsonii,	A. Smith.
" *pallidus,*	Sykes.
" *dalmaticus,*	Ruppell.
" *albescens,*	Lesson.
Falco herbæcolo,?	Tickell.
" *cyaneus, var A.*	Latham.

CALCUTTA SPARROW-HAWK.

I sent Mr. Blyth the "Calcutta sparrow-hawk" from Maulmain, and Major Phayre found it in Aracan.

Micronisus badius,	Gray.
Falco "	Gmelin.
" *Brownii,*	Shaw.
" *Dussumieri,*	Temminck.
Accipiter dukhunensis,	Sykes.
Chippuck falcon,	Latham.

သိမ်းကြတ်မ။ လံဒွါ့ လံဝ်လွ။

BANDED HAWK.

This sparrow hawk has dark bands across the tail from which it derives its specific name.

Accipiter virgatus,	Jerdon.
Falco "	Temminck.
Nisus minutus,	Lesson.
Accipiter besra,	Jerdon.
" *fringillarius,*	"
" *Dussumieri* .	Sykes.

GOSHAWK.

Mr. Barbe found a species of goshawk at Ye, in the Tenasserim Provinces.

Astur trivirgatus.	
" *indicus,*	Hodgson.
" *Palumbarius,*	Jerdon.
" *cristatus,*	Gray.
Falco trivirgatus,	Reinwardt.
Spizaetus rufitinetus,	M'Clelland.

BANJ EAGLE.

Belonging to the class of eagle-hawks, we have the banj eagle of Latham.

Spizætus linœtus.	
Falco "	Horsfield.
" *caligatus,*	Raffles.
" *niveus,*	Temminck.
Limaëtus unicolor,	Vigors.
Nisaëtus nipalensis,	Hodgson.
" *pallidus,*	"
Falco eristatellus,	Temminck.
" *Lathami,*	Tickell.
" *cirrhatus?*	Gmelin.

IMPERIAL EAGLE.

The imperial eagle, the "brown backed eagle" of Latham, was first identified in Aracan by Major Phayre, but has since been

found in other parts of Burmah.

Aquila imperialis.	
" *heliaca,*	Savigny.
" *bifasciata,*	Gray.
" *nipalensis,*	Hodgson.
" *chrysaëtos,*	Jerdon.
Falco mogilnik,	Gmelin.
" *ferox,*	Latham.

ဝံလိုး လံကျီးကျီး. လံဝ်ကြီကြဝ်။

SPOTTED EAGLE.

The "spotted eagle" of Latham, has also been sent to Mr. Blyth from Burmah.

Aquila nævia,	Blyth,
" *malanaëtus,*	Savigny.
" *clanga,*	Pallas.
" *bifasciata,*	Hornseh.
Falco nævius,	Gmelin.
" *undulatus,*	"

ONE-COLORED EAGLE.

Another eagle. nearly related to the above, is

Aquila hastata,	Blyth.
Morphnus hastatus,	Lesson.
Spizaëtus punctatus,	Jerdon.
Limnaëtus unicolor,	Blyth.

BLACK EAGLE.

The black eagle of Jerdon is common in Burmah, where it is called *lie-thu*, "black eagle," by the Karens. The Burmese appear to call all the species by the same name, *wonlo*.

Ictinaëtus malaiensis,	Blyth.
Aquila perniger,	Hodgson.
Heteropus "	"
Neopus "	"

ဝံလိုး လံဖၢဒုၢ် လံဝ်ဖါသူလံဝ်သူး။

LITTLE BUZZARD.

The only buzzard that has yet been found in Burmah is a new and diminutive species described by Mr. Blyth as

Buteo pygmæus.

BENGAL OSPREY.

The "Bengal osprey" is a common bird in Burmah.

Pandion haliaetus,	Blyth.
" *fluviatilis,*	Savigny.
" *indicus,*	Hodgson.
Falco haliaetus,	Linn.
Bengal osprey,	Latham.

ဝံသက်

TWO-COLOURED ERNE.

Another fishing eagle is called by the Bengalees "fish-tyrant," and is characterized by one naturalist as "two-coloured," and by another "lead coloured."

Pontoaêtus icthyaëtus,	Blyth.
" *plumbeus,*	Hodgson,
Falco icthyaetus,	Horsfield.
Icthyaetus bicolor,	Gray.

MARITIME EAGLE.

The "maritime eagle" of Latham, an osprey that has also been called "Kampamar eagle," is an inhabitant of Burmah.

Blagrus leucogastur,	Blyth.
Falco "	Gmelin.
" *blagrus,?*	Dandin.
" *dimidiatus,*	Raffles.
" *albicilla,*	Latham.
Ichthyaetus cultrunguis,	Blyth.
Haliaetus sphenurus,	Gould.,

BONE-BREAKER.

The "bone-breaker," or a nearly related species of fishing eagle, has been found in the country.

Haliaetus Macei,	Blyth.
Falco, "	Temminck.
Haliaetus albicilla,	Vigors and Horsfield.
" *ossifragus,?*	Raffles.
" *fulvigaster,*	Vieillot.
" *albipes,*	Hodgson.
" *lineatus,*	Hardwick.
" *unicolor,*	"

BRAHMINEE KITE.

A white-headed fishing eagle that has been called "Brahminee kite," "Shiva's kite," and "Washerman's kite," is common on the plains of Burmah, and I have seen it occasionally on the mountains.

Haliastur indus,	Blyth.
Falco, "	Boddaërt.
" *pondicerianus,*	Gmelin.
Milvus rotundicaudatus,	Hodgson.

BENGAL KITE.

The common Bengal kite abounds in the vicinity of Maul main and in many other parts of Burmah.

Milvus govinda,	Sykes.
" *atur,* ?	
Falco " ?	Gmelin.
" *austriaeus,*	"
Milvus ŏetoleus,	Lesson.
" *affinis,* ?	Gould.

စွန်ပုပ်။

CHINESE VULTURE.

The Chinese vulture, of a brownish black colour, is often seen in great numbers, even in the suburbs of our largest towns.

Gyps bengalensis,	Hardicke.
Vultur bengalensis,	Gmelin.
" *indicus,*	Temminck.
" *chaguoun,*	Dandin.
" *leuconotus,*	Gray.

လင်းတ။ လေးကထုပ်. လီးတက်။ လေးတက်။

PONDICHERRY VULTURE.

This is called by the Karens the red-headed vulture, from the flesh coloured skin on the sides of its head and neck. It is not so abundant as the preceding species.

Otogyps calvus,	Blyth.
Vultur "	Scopoli.
" *pondicerianus,*	Dandin.

လင်းတ။ လေးကထုပ်ဒိုးခြ. လီးတက်ဂီးခိန်။

INDIAN VULTURE.

Mr. Blyth distinguishes one of our vultures as the "Indian vulture."

Gyps indicus,	Grey.
Vultus "	Scoptoli and Latham.
" *bengalensis,*	Temminck.
" *tenniceps,*	Hodgson.
" *tennirostris,*	"

A white vulture with a little black on the wings is designated in the Hebrew Scriptures, where gier-eagle is read in the English version; and the word rendered vulture in Job, is more correctly translated in Liviticus and Deuteronomy by kite. It was probably a generic term like the Burman *zune*, embracing several species of falcons and kites. In Persian the kestril is called *yuh*, no doubt a word of common origin with the Hebrew name *ayah*.

OWLS.

Thirteen species of owls belonging to eight different genera are known to exist in British Burmah.

BARN OWL.

The Javanese owl, a species so nearly related to the common English barn owl, that Mr. Blyth considered them identical when he published his catalogue, but has since told me that he now regards it as distinct, abounds in Burmah.

Strix javanica.

ငှက်ဆိုး။ ထိ၂ပရူ၂. ဒိကအိ။

HORNED OWL.

A large horned owl with naked legs often lifts up its boding notes of *tee-douk*, uttered with sepulchral tones, at midnight, and, like a ventriloquist, seems to throw its voice to any point of the compass at pleasure.

Ketupa ceylonensis,	Blyth.
Strix,	Gmelin.
" *Leschenaultii*	Temminck.
Jurnia Hardwickii,	Gray.
" *Dumeticola,*	Tickell.
Cultrunguis nigripes,	Hodgson.

တီးတုတ်။ ထိ၂ပရူ၂၀၂ဒိ၂. ဒိကအိ၀းဒိဉ်။ ထိဉ်ဖိရှိ၎်လ၎်

JAVANESE KETUPA.

This is a species nearly related to the preceding.

Keputa javanensis,	Lesson.
Strix Keputa,	Horsfield.
" *ceylonensis,*	Temminck.

SCREECH OWL.

This small owl is remarkable for its loud screeching. It is very abundant at Tavoy, and though I never heard it at Maulmain, its familiar voice saluted me on the first night of my arrival in Tourgoo. It is also common in Aracan.

Ninox scutulatus,	Blyth.
Strix scutulata,	Raffles.
" *hirsuta,*	Temminck.
" *lugubris,*	Tickell.
Ninox nipalensis,	Hodgson.
Athene malayensis,	Eyton.

ခင်ပုတ်။ ထိ၂ပရူ၂. ဒိကဆိ

SMALL OWL.

A very small owl which the natives say is one that screeches, is very common at Tavoy, and was found by Major Phayre in Aracan.

Athene cuculoides,	Gould.
Noctua "	Vigors.
Ninox auribarbis,	Hodgson.

ဇီးကွက် ထိုပဂူဖြ. ဒိကဆိဖိ

The other owls are,

BENGAL BUBO.

Bubo bengalensis,	Gould.
Otus "	Franklin.
Bubo caveareus,	Hodgson.
Urrua cavearea,	"

COROMANDEL BUBO.

Bubo umbratus,	Blyth.
Urrua umbrata,	"
Strix coromanda,	Latham.
" *coromander.*	
" *coromandra.*	
" *coromandelica.*	

SHORT-EARED OWL.

Asio brachyotus,	Gould.
Strix "	Gmelin.
" *ulula,*	Pallas.
Surnia aegolius,	"
" *accipitrina,*	"
" *arctica,*	Sparrman.
" *tripennis,*	Schrank.
" *palustris,*	Smies.
" *brachyura,*	Nielsson.
Brachyurus palustris,	Gould.

SCOPS-EARED OWL.

Scops bakkamoéna.	
" *sunia,*	Hodgson.
" *pennata,*	"
" *malayanus,*	H. Hay.
Strix bakkamaěna,	Pennant.
Ephialtes spilocephalus.	

JAVANESE SCOPS.

Scops lempiji,	Blyth.
Strix, "	Horsfield.
" *noctula,*	Reinwardt.
Scops javanicus,	Lesson.

NEWAR SYRNIUM.

Syrnium indrani,	Gray.
Strix "	Sykes.
Bulaca newarensis,	Hodgson.
" *monticola,*	Jerdon.

ORIENTAL SYRNIUM.

Syrnium sineuse,	Hardwicke.
Strix sinensis,	Latham.
" *orientalis,*	Shaw.

JAVANESE PHODILUS.

Phodilus badius,	Horsfield.
Strix badia,	"

HONEY BUZZARD.

Writing to Major Broadfoot at Mergui, Mr. Blyth says: "That beautiful hawk, dark above, and white below, with the black tear like marks on the feathers, very peculiar for a hawk, is a species of honey buzzard."

CONCAVE HORNBILL.

The hornbills are among the most remarkable birds of India. Their flight is elevated and rapid, and the sound of their wings as they sweep through the air is like the rush of an approaching tempest. There are five species in Burmah, all with bills of an enormous size, and one with a high concave cask. These birds are celebrated in Karen poetry for their conjugal affection. Their nests are constructed in a superior manner of clay in the stumps or hollows of old trees. After the female has layed five or six eggs, the male bird shuts her entirely in with mud, except a small orifice where she can only peep out her head. Here she must sit during her incubation, for if she breaks through the inclosure her life pays the forfeit; but to compensate for the loss of freedom, her spirited mate is ever on the alert to gratify his dainty mistress, who compels him to bring all her viands unbroken, for if a fig or any fruit be injured, she will not touch it.

Buceros cavatus,	Shaw.
" *bicornis,* ?	Linn.
" *homrai,*	Hodgson.

ယောင်ယင်း ထိုကိုး. ထိုင်ကိုး

BLACK HORNBILL.

This species from its colour is called by the natives the black hornbill.

Buceros pusarau,	Raffles.
" *ruficollis,*	Blyth.

ယောင်ယင်နက်း ထိုးဥး. ထိုင်ဩးထိုင်သူး

WHITE-BILLED HORNBILL.

This is one of two small species which are called "tiger birds," by the Karens; and have but one name in both Burmese and Karen.

Buceros	*albirostris,*	Shaw.
"	*malabaricus,*	Latham.
"	*leucogaster,*	Blyth.

အောက်ချင်း။ ထိုးခဲ၅.-ထိုးခဲ၅ရှုး. ထိုင်ခွန်ရီ

PLICATED HORNBILL.

This species derives its name from the plaits or folds on its bill.

Buceros	*plicatus,*	Latham, Shaw.
"	*obscurus*	Gmelin.
"	*subruficallis,*	Blyth.

TICKELL'S HORNBILL.

Major Tickell discovered a new species of hornbill on the summit of the highest mountains in province Amherst.

"Length 25 or 26 in.; of wing 12 in.; and tail 11 in. Bill 4½ in. from forehead, and 2 in. in greatest vertical depth, at ¼ of its length from base; the basal half of the upper mandible gibbous, or pinched up (as it were) into a sharp keel, which descends more abruptly upon the forehead (where concealed by the erect frontal feathers), and slopes evenly forwards till it disappears, at about ⅔ of the length of the bill from base. Occipital crest ample; the feathers open-webbed, and with those of the crown fuscous-brown with narrow pale mesial line to each; upper-parts uniform dark fuscous-brown, with a slight gloss of green; the middle pair of tail-feathers coloured like the back, but the rest much darker, or glossy green-black."

"This hornbill and B. PUSARAN have a steady even flight. All the others I have seen, viz. CAVATUS, ALBIROSTRIS, NIPALENSIS, PICA, and BIROSTRIS, proceed with those singular flappings and sailings, so peculiar to this genus: and it is strange that these two species should offer so marked a distinction.

Buceros Tickelli, Blyth.

HOOPOE.

The hoopoe is one of the few birds that we have in common with Europe, and which was well known to the ancients. According to Grecian mythology, Tereus, king of Thrace, was turned into a hoopoe, hoopoes having been first seen on his monument; and in some parts of Europe it is regarded as a bird of omen. It is the lapwing of Leviticus and Deuteronomy, in our received version. On this coast, as in other parts of the world, it appears to be a bird of passage, for not one is seen in the

rains, although during the dry season, they show their arched, buff-coloured crests in almost every garden.

Upupa epops.

တောင်ဒိစုတ်။ ထိုးရှုာ. ဘိစံဃိုင်။

KINGFISHERS.

Ten species of kingfishers are known to inhabit Burmah, and the skins of some of the species are an article of export with the Chinese; their elegant feathers being highly valued in China. Excepting the three-toed species, the natives have but one name for them all. The Burmese call them *pein-nyen*, but the large species they name *pein-nyen gyie*, "great kingfishers", or *hsen-peing-nyen*, "elephant kingfishers"; and the smaller ones are *pein-nyen-galay*, "little king-fisher".

BEAUTIFUL LITTLE KINGFISHER.

Dacelo pulchella,	Horsfield.

JUNGLE KINGFISHER.

Hulcyon gurial,	Pearson.
" *brunniceps,*	Jerdon.
" *leucocephalus,*	Horsfield.

SMYRNA KINGFISHER.

Haleyon smyrnensis,	Blyth.
Alcedo "	Linn.
Ispida bengalensis minor,	Brisson.

COROMANDEL KINGFISHER.

Halcyon coramander,	Blyth.
" *coramandelicus,*	Vigors.
Alcedo coramander,	Latham.

BLACK-CAPPED KINGFISHER.

Halcyon atricapillus,	Blyth.
Alcedo atricapilla,	Latham.
" *albiventris,*	Scopoli.

SACRED KINGFISHER.

This is not identical, but nearly related to the holy kingfisher of the South Islands, which it was sacrilege to kill.

Todirhamphus collaris,	Blyth.
Alcedo "	Scopoli.
" *chlorocephala,*	Gmelin.
" *sacer, or sanctus.*	
Todirhamphus occipitalis,	Blyth.

WILD KINGFISHER.

Ceryle rudis,	Edwards.
Alcedo "	Linn.
Ispida bitorquata,	Swainson.
Ceryle varia,	Strickland.

BENGAL KINGFISHER.

Alcedo bengalensis,	Edwards.

ASIATIC KINGFISHER.

Alcedo meningting,	Horsfield.
" *asiatica,*	Swainson.

THREE-TOED KINGFISHER.

Ceyx erythaca,	Jerdon.
Alcedo "	Pallas.
" *tridactyla,*	"
" *purpurea,*	Gmelin.
" *rubra,*	Boddaert.
Ceyx microsoma,	Burton.

ROLLER.

The roller, often by a misnomer called the blue jay is diffused over all our compounds. The Burmese say that the most precious sapphire is exactly the colour of the wings of this bird; and it is hence called the "roller sapphire.".

Coracias affinis,	M'Clelland.
" *assamiensis.*	

ငှက်ခါ။ ထိုကျုပ်စီး. နီကွဲ်ကွင်။ နါကွဲ်ကွင်။

BROAD-BILLED ROLLER.

Another bird resembling a roller, but with a shorter and broader bill; and longer wings, tenants Pegu groves.

Eurystomus orientalis	
" *faci collis,*	Vieillot.
" *cyanicollis.*	

မိုဃ်းကောင်းငှက်။

BEE-EATERS.

The family of bee-eaters has five representatives in Burmah.

GREEN BEE-EATER.

The green bee-eater, a very handsome bird, is common all over the country. The Karens call it the Mount Meru bird, because it is supposed to dwell there during the rainy reason.

Merops viridis,	Linn.
" *Lamarckii,*	Cuvier.
" *Orientalis,*	Latham.
" *indicus,*	Jerdon.
" *coromandus,*	Var. M. Latham.

ငှက်ပစင်းထိုး။ မိုဃ်းနကြီး။ (*Aracan.*) ၁၇ဝ်. ဒီဝ်ဉ်။

JAVANESE BEE-EATER.

Merops philippinus,	Linn.
" *javanicus,*	Horsfield,
" *Leschenaultii,*	Levaillant.

RED-HEADED BEE-EATER.

Merops erythrocephalus.	Latham.
" *quinticolor,*	Vieillot.
" *uviea,*	Horsfield.

WASP-EATER.

This is a large species which the Burmese call *pya-too-nghet,* it being supposed to feed on wasps.

Alcemerops Athertonii,	Jardine and Selby.
Merops "	
Bucia nipalensis,	Hodgson.
Merops cyanogularis,	Jerdon.
Nyctiornis amberstiana,	Royle.

ပျားတူးငှက်။

Another species of this genus is,

Alcemerops amicta,	Swainson.
Merops amictus,	Temminck.

WOODPECKERS.

Thirteen species of woodpeckers have been found in the country, all of which the Burmese denominate *theet-touk,* "tree-rappers."

RED-PLUMED WOODPECKER.

A black-backed woodpecker, the male distinguished by a crimson tuft on the head, is a numerous species in the Provinces. It differs very slightly, Mr. Blyth says, from the Molucca woodpecker, *P. Moluccensis.*

The Karens regard it as a bird of bad omen. Whenever its voice is heard, the children are charged not to go out of the house, for it is deemed to be the dog of a witch.

Picus canicapillus.

ငှက်သစ်တောက်၊ ထိန်ဝလွ။

JAVANESE WOODPECKER.

This Mr. Blyth says is the largest of Indian woodpeckers.

Hemilophus pulverulentus,	Blyth.
Picus "	Temn.
" *javensis,*	Horsfield.

SAGACIOUS WOODPECKER.

Hemicercus caneute,	Lesson.
Picus "	"
Hemicercus cordatus,	Jerdon.

ROYAL WOODPECKER.

Chrysocolaptes sultaneus,	Blyth.
Picus "	Hodgson.
" *strictus,*	Jerdon.
" *strenuus,*	Gould.

THREE-TOED WOODPECKER.

A species of woodpecker with three toes, instead of the ordinary number four, is not uncommon.

Tiga intermedia,	Blyth.

GREEN WOODPECKER.

A large green woodpecker, which the Karens call "the bark bird," is described as having "the neck, breast, and under parts very deeply tinged with green, ear coverts grey."

Gecinus dimidiatus,	Blyth.
Picus "	Temminck.
" *vittatus,*	Vieillot.
" *affinis,*	Raffles.
Gecinus viridanus,	Blyth.

BLACK-CROWNED GREEN WOODPECKER.

Another species of green woodpecker is seen in Burmah, of which Mr. Blyth writes: "This species is *about ten or eleven inches in length,* dusky-green above, with a shade of yellow on the lower part of the back; cinereous *or slightly ferruginous* below, *mixed with brown on the abdomen.* Quill feathers brown, spotted with white. Tail-feathers brown, pointed as usual in this genus; the two uppermost with a few light coloured spots along their inner margin. A gray patch encircles the eyes, bounded below by a black stripe mixed with white spots, which runs from behind the lower mandible. In the male the crown of the head is red, often variegated with black, each feather being black at the base and red at the tip; in the female it is *entirely black.*

Gecinus occipitalis,	Gould.
Picus "	Vigers.
" *barbatus,*	Gray.

ARACAN GREEN WOODPECKER.

Another species of greed woodpecker is found in Aracan.

Gecinus flavinucha,	Blyth.
Picus "	Gould.
Dryotomus flavigula,	Hodgson.

TENASSERIM GREEN WOODPECKERS.

Mr. Blyth has two other species of *Gecinus* sent him from the Tenasserim Provinces.

Gecinus mentalis,	Blyth.
Picus, "	Temm.
Gecinus puniceus,	Blyth.
Picus "	Horsfield.
Chrysonotus miniatus,	Eyton.

BLACK WOODPECKERS.

Three species of black woodpeckers have been found in Aracan and the Tenasserim Provinces.

Meiglyptes jugularis,	Blyth.
Syn " *tristis,*	"
Piecus tristis	Horsfield.
Syn " *poicilophus,*	Temm.
Piecus atratus,	Blyth.

RUFOUS INDIAN WOODPECKER.

A red backed woodpecker has been sent to Mr. Blyth from Aracan by Major Phayre, from Mergui by Mr. Barbe, and from Shwagyeen by Major Berdmore.

Micropternus phaioceps,	Blyth.
Picus rufonotus,	Malherbe.
" *rufus,*	Latham.
Rufous Indian Woodpecker,	"

BARBETS.

Six handsome barbets are found between Mergui and Aracan.

INDIAN BARBET.

Nearly every garden in Maulmain is vocal with the monotone of the Indian barbet, which the Burmese call "the smith," and the Karens the "gong-ringer." It is a beautiful bird, clothed in green, crimson, and yellow, and is quite familiar.

Megalaima philippensis,	Temm.
Bucco "	Brisson.
" *flavigula,*	Boddaert.
Bucco indiens,	Latham.
" *flavicollis,*	Vieillot.
" *rubricollis,*	Cuvier.
" *luteus,*	Lesson.

ဌက်ပန်း တိန်။ ထိၵဖိၤဒီၤ. ထိန်ဒိန်ဒိၤ။

GREEN BARBET.

Megalaima virens,	Gould.
Bucco grandis,	Gmelin.

LINED BARBET.

Megalaima lineata,	Temm.
Bucco lineatus,	Vieillot.
" *corvinus,*	Temm.

မိုးကောင်း ထိုးကိုးလူး. ထိုင်ကျိုင်ဘီး

ASIATIC BARBET.

Megalaima asiatica,	Vieillot.
Trogon asiaticus,	Latham.
Capitto cyanocollis,	Vieillot.
Bucco cyanops,	Cuvier.
" *caerulens,*	Dumeril.

ကုပ်ခလောင်း

FRANKLIN'S BARBET.

Megalaima Franklinii.	
Bucco "	Blyth.

RED-CHEEKED BARBET.

Megalaima trimaculata,	Temm.
Bucco trimaculatus,	Gray.
" *frontalis,*	Temm.
" *Duvancelei,*	Lesson.
" *australis,*	Raffles.
" *cyanotis,*	Blyth.

ဌက်ပတိန်း

CUCKOOS.

Seventeen species of the cuckoo family are denizens of Burmah.

FERUGINOUS-NECKED CUCKOO.

Cuculus sparveroides,	Vigors.
Ferruginous-necked cuckoo,?	Latham.

SLENDER-BILLED CUCKOO.

Cuculus varius,	Vahl.
" *fugax,*	Horsfield.
" *Lathami,*	Gray.
" *tenuirostris,*	Lesson.
" *ejulans,*	Sundevall.
" *nisicolor,*	Hodgson.

STRIATED CUCKOO.

Cuculus striatus,	Drapiez.
" *mieropterus,*	Gould.

Cuculus optatus,	Gould.
" *affinis,*	A. Hay.
" *flaviventris,*	Strickland.

HIMALAYAN CUCKOO.

Cuculus himalayanus,	Vigors.
Surniculus saturatus,	Hodgson.

GOLDEN CUCKOO.

Cuculus tunuirostris,	Grey.
" *flavus,*	Jerdon.
" *lineatus,* ?	Lesson.
" *niger,*	Blyth.

SONNERAT'S CUCKOO.

Cuculus Sonneratii,	Latham.
" *rufovittatus,*	Drapies.
" *pravatus,*	Horsfield.

KING-CROW CUCKOO.

Surniculus dicruroides,	Blyth.
Pseudornis "	Hodgson.
Surniculus lugubris.	

AMETHYSTINE-PURPLE CUCKOO.

This attractive little bird is a beautiful specimen of the cuckoo tribe, distributed over some parts of our woodlands.

Chrysococyx xanthorhynchos,	Horsfield.
Lampromorpha amethystina,	Vigors.
Cuculus zanthorhynchos,	Horsfield.

MALAYAN CUCKOO.

Chrysococcyx chaleites, ?	Temm.
Cuculus Malayanus, ?	Raffles.
Chrysococcyx smaragdinus,	Blyth.
Trogon maculatus,	Gmelin.

ORIENTAL CUCKOO.

This is a black cuckoo resembling the European bird. The Karens call it the crow's slave.

Eudynamys orientalis,	Blyth.	
Cuculus "	Linn.	
" *punctatus,*	"	The female.
" *mindanensis,*	"	
" *scolopaceus,*	"	
" *maculatus,*	Gmelin.	
" *indicus,*	Latham.	
" *niger,*	"	

MILKMAN CUCKOO.

Oxylophus melanoleucos,	Blyth.
Cuculus "	Gmelin.
" *edolius,*	Cuvier.
Leptosomus afer,	Franklin.

COROMANDEL CUCKOO.

Oxylophus coromandus,	Blyth.
Coculus "	Linn.
" *collaris,*	Vieillot.

HOOK-BILLED CUCKOO.

Phœnicophaus curvirostris,	Vail.
Cuculus "	Shaw.
Phœnicophaus tricolor,	Stevens.
" *viridis,*	Vieillot.
Cuculus melanognathus,	Raffles.

BOTTLE-GREEN CUCKOO.

This is a large bottle-green bird with a long tail, of common occurrence.

Zauclostomus tristis,	Belanger.
Melias "	Lesson.
Phœnicophaus longicaudatus.	Blyth.

ဝါဖလေး။ ဒိုဃကိ၂. စိးစံစိဉ်။ စိးတစိဉ်။

CHALYBEATE CUCKOO.

Zauclostomus javanicus,	Blyth.
Phœnicophaus "	Horsfield.
Coccyzus chrysogaster,	Temm.
Cuculus rubrirostis,	Drapiez.
Chalybeate cuckoo,	Latham.

CROW-PHEASANT.

A large brown bird, which Europeans call "crow-pheasant," is often seen in Tavoy gardens, and belongs to the cuckoo tribe. The natives say that it lifts up its hoarse voice only when the tide is turning.

Centropus phillipensis,	Cuvier.
Cuculus ægyptius Var. g.	Latham.
Corydonix purrhopterus,	Vieillot.
Centropus bubutus,	Horsfield.
Cuculus castanopterus,	Stevens.
" *fasciatus,*	C. W. Smith.
Polophilus sinensis, Var.	Stevens.

ဗုတ်။ ထိ၂ဖူ၊နှာ့. ကိုးကူင်။

BENGAL CROW-PHEASANT.

Centropus viridis,	Brown.
Cuculus "	Scopoli.
" *bengalensis,*	Latham.
" *tolu,*	Raffles.
" *lepidus,*	Horsfield.
" *affinis,*	"
" *pumilus,*	Lesson.
" *melanops (prob.)*	"
" *dimidiatus,*	Blyth.
" *rectunguis,*	Strickland.
Polophilus Lathami ?	Leach.

TROGONS.

Some of the trogons are most magnificent birds. The *trogon resplendens* is said to have plumes three feet in length, intensely brilliant, of metallic golden green, which were used by the ancient Mexicans as ornaments to their head-dresses.

Two species have been found in Burmah. One with a green and the other with a red head.

RED-HEADED TROGON.

Harpactes Hodgsonii,	Gould.
Trogon erythrocephalus,	"
" *faciatus Var A.*	Latham.

♂♀

GREEN-HEADED TROGON.

Harpactes oreskios,	Gould.
Trogon "	Temm.

♂♀

NIGHTJARS.

A nightjar, or goat-sucker, is one of our most common nocturnal visitors, and its loud sounding note may be often heard serenading the sleepless traveller in the stillness of midnight. Its monotone is so much like *koke*, the Karen word for *chop*, that whenever noticed by the Karens they say, "the nightjar is

chopping down his trees." The American whip-poor-will is a bird of the same genus. Five species are known in the country.

Caprimulgus wacrourus.

မြေဝတ်။ (ဌက်ပြင်း။ *Aracan.*)

ထိုဖါ. ထိန်သတန်။

STRONG-BILLED NIGHTJAR.

Podargus affinis, Blyth.

LYNCORNIS NIGHTJAR.

Eurostopodus cerviniceps, Gould.
Lyncornis " "
Twun-dweng-nghet, Aracan.

INDIAN NIGHTJAR.

Caprimulgus indicus, Latham.
" *cinerascens,* Vieillot.
" *innotatus,* Hodgson.

GREAT BOMBAY GOATSUCKER.

Caprimulgus monticolus, Franklin.
Great Bombay Goatsucker Latham.

SWALLOWS.

Six species of swallows or swifts are among our fauna.

SPINY-TAILED SWIFT.

Acanthylis caudacuta, Blyth.
Hirundo " Latham.
Cypselus giganteus Temm.

NEPAL SWALLOW.

Cypselus affinis, Gray.
" *nipalensis,* Hodgson.
" *montanus.* Jerdon.

PALM SWALLOWS.

Mr. Blyth says this species is found wherever the Palmyra palm grows, " to the fronds of which it affixes its nests."

Cypselus balasiensis, Grays.
" *palmarum,* "

ပြန်သွားး ထုကျွုံ့ဘျွုံ့. ဘျှန်ဘျှန်ဇီး။

SHORT-FOOTED SWALLOWS.

Macropteryx coronatus, Blyth.
Hirundo coronata, Tickell.

ONE COLOURED SWIFT.

Collocalia	*nidifica*,	Blyth.
Hirundo	"	Latham.
"	*esculenta*,	Horsfield.
"	*fuciphaga*,	Shaw.
"	*brevirostris*,	M'Clelland.
"	*unicolor*,	Jerdon.

EDIBLE-NEST SWALLOW.

The swallows, or swiftlets, which build the edible nests, are so numerous in the limestone caves on the islets and islands on the Tavoy coast, that the Government revenue from the bird-nest farm in 1847 was nearly eleven thousand rupees; but in 1849, it was more than four thousand rupees less. At Mergui they are not so numerous.

The nests are of several qualities, the best being those which are taken before the bird lays its eggs, and which sell in China for about forty-five rupees the pound.

In relation to the identification of the species, Mr. Blyth says: "As regards the *Hirundo esculenta* of Linnæus, there is no reason to suppose that this as described, with yellow irides and white tipped tail, has any prototype in nature: the latter would be an anomaly throughout the cypselidæ, but may refer perhaps to the white tail-markings of some real hirundo, erroneously supposed to be the constructer of the edible nests. Dr. Horsfield gives the species termed *lawet* by the Javanese as *Hirundo esculenta*, Osbeck stating that the specimens which he examined in Java, and those which he took to England, differ from Latham's description in being uniformly of a blackish colour, without a white extremity to the rectrices. Another species, the *linchi* of the Javanese, he gives as *H. fuciphaga*, Thumberg stating that 'its nest is constructed of mosses and lichens, connected with the same gelatinous substance which composes the edible nest of the preceding species.' In the Journal of the Indian Archipelago, the same two species are distinguished by the names *lawet* and *tintye*, and the nest of the latter is described to be without the least value. And it is added, 'The residence of these swallows, or swiftlets, termed *lintye*, in the caves, contributes greatly to the injury of the holes, for which reason they are destroyed as much as possible at each gathering. The nests which they make are constructed of grass-stalks. They are, however, of the same form, and are as artfully made as the others.'

"Heer Hooyman likewise states, that besides the *lawet*, other species resort to the same caverns, which are named *momomo*, *boerong-itam*, *boerong-zoekoe*, and *lintje*. 'These,' he adds, 'are very similar to each other, excepting the second, which has the

head larger ; and the feathers of all are entirely black. The nests which they construct are black and friable, composed of a light down.' (Agglutinated ?) 'An opinion prevails that the presence of these birds is injurious to the caverns, on which account they are driven away as much as possible.' Another writer in the same volume of the Bataviaasch Genootschap, mentions the *momos* or *boerongitam* (thus bringing together M. Hooyman's first two species,) as a large kind with plumed tarsi, indicating thus a true cypcelus, which is probably the constructer of the nests assigned by Dr. Horsfield and others to the *linchi*. Assuredly, however, the *C. fuciphaga*, (Thunberg,) *linchi* or *lintye* of the Javanese, identical upon comparison with Javanese specimens, would appear to be the sole producer of the numerous nests gathered on the rocky coasts of the Bay of Bengal ; and the often quoted notice by Sir G. Staunton, in his account of the Earl of Macartney's Embassy to China, must refer either to *C. fuciphaga*, or to an entirely new species, which is hardly to be supposed in the locality. For he remarks : 'The birds which build these nests are small gray swallows, *with bellies of a dirtg white*. The white belly is characteristic of *C. fuciphaga ;* and this particular species occurs abundantly on parts of the coast of the Malayan Peninsula, in the Nicobar islands, and the Mergui Archipelago, and so high as on certain rocky islets off the southern portion of the coast of Aracan, where the nests are annually gathered and exported to China. From all this range of coast we have seen no other species than fuciphaga, nor does it appear that any other has been observed ; and I have examined a multitude both of the adults and of young taken from the nests, collected in the Nicobars and preserved in spirit, all of which were of the same species. Still, what appears to be *C. nidifica*, inhabits the mountains far in the interior of India, though hitherto unobserved upon the coasts ; and it is worthy of notice that *C. fucephaga* does not appear to have been hitherto remarked inland in this country."

It may be here added that *C. fucephaga* is constantly seen inland in these Provinces. The Karens in the valley of the Tenasserim in the latitude of Tavoy, are well acquainted with the bird, and they say it crosses the mountains to and from the interior every year. That it is the same species there can be no doubt, for the Karen name of the bird is "the white swallow," from its white belly.

Collocalia fucephaga.
Hirundo fucephaga, Thun.

ဇီဝမိုး။ ထၢဘူ့ဘူ့အွၢ. ဘျှင်ဘျှိုင်ဝါ။

CROWS.

There are two different species of crows in Burmah. The "common Indian crow" is seen as far south as Akyab, and is occasionally found in Pegu. It is sometimes mistaken for the jackdaw.

Corvus splendeus,	Vieillot.

INDIAN BLACK CROW.

This is the common crow of Burmah and the Tenasserim Provinces. It is often erroneously termed raven.

Corvus culminatus,	Sykes.
" *orientalis,*	Eversmamm.
" *corone,*	Franklin.
" *corax,* ?	Raffles.

MAGPIES.

The European magpie is not found in the country, but we have five species belonging to the same family.

WANDERING PIE.

This is a handsome bird with a long tail, the feathers of which are tipped with black, while the back is of a cinnamon colour. The Karens call it the tiger-king crow.

Dendrocitta rufa,	Vail.
Corvus rufus,	Scopoli.
Coracias vagabunda,	Latham.
Pica rufiventris,	Vieillot.

ထိၢကျိၢခ့ၢ. ထိန်ချုန်ခ့.

THE SATIN CROW, OR BENTEOT.

The benteot is related to the preceding, and has the same vernacular names. Mr. Blyth wrote of a specimen that I sent him: "A bird which I have only seen from Tenasserim and Java—never from the Malay Peninsula." It is quite common in the neighbourhood of Maulmain, and its rarity in India makes it worthy of special attention to collectors.

Crypsirina varians,	Vieillot.
Phrenotrix temia,	Hors.
Corvus temia,	Shaw.
" *varians,*	Latham.

JAY MAGPIE.

This is a fine little bird with scarlet wings, and a green robe, but when exposed to the light, Mr. Blyth says the green turns to blue and the red to a dull ash colour, and that "it combines in its manners the traits of the jay and shrike."

Cissa venatoria,	Hardwicke.
Kitta venatoria,	Gray.
Corvus sinensis, ?	Boddaert.
" *speciosus,* ?	Shaw.
Corapica bengalensis	Lesson.

BLUE MAGPIE.

The blue magpie is a handsome bird with a long tail, which was first discovered by Major Phayre in Aracan, but has since been found in Toungoo. General Johnson had one which exhibited all the traits of the English magpie. It would take bones; hide them in a hollow bamboo, cover them up with a rag, and return to them when needed. When a bamboo could not be found, it would hide its spare food under the mat.

Psilorhinus magnirostris. Blyth.

CHINESE JAY-MAGPIE.

Psilorhinus occipitalis,	Blyth.
" *sinensis,*	
" *albicapillus,*	Blyth.
Pica erythrorhyncha,	Vigors, Gould.
Corvus sinensis,	Linn.
" *erythrorhynchos?*	Boddaert.
Coracias melanocephala?	Latham.

BABLERS.

The bablers are small birds which fly in flocks, remarkable for their chattering; seven species belonging to the genus *garrulax* have been found in Burmah.

GORRULAX BELANGERI,	Lesson.
Ianthocincta leucolophos?	Blyth.
G. LEUCOLOPHOS,	Blyth.
Corvus leucolophos,	Gmelin.
G. strepitans,	Tickell.
G. CHINENSIS,	Blyth.
Lanius chinensis,	Scopoli.
Corvus auritus,	Gmelin.
Turdus melanopsis,	"
Crateropus leucogenys,	Blyth.

G. PECTORALIS,	Blyth.
Ianthrocincla pectoralis,	Gould.
Cinclosoma grisaure,	Hodgson.
Garrulax melanotis,	Blyth.
G. MELANOSTIGMA,	Blyth.

ဝရောင်းငှက်။ ထိုးယိုးအွားခိုး. ထိန်ယူးဝါခိန်

Add to these two new species of *sibiâ*, recently discovered by Major Tickell in Province Amherst.

SILKY CHATTERER.

Allied to the silky chatterers Mr. Blyth places the following species.

Eopornis xantholeuca, *Hodgson.*

TITMICE.

Three species of titmice are known in the country.

PARUS FLAVOCRISTATUS,	Lafresnaye.
Parus sultaneus	Hodgson.
melanochlora flavocristata,	Lesson.
" *sumatrana,*	"
PARUS SUBVIRIDIS,	Tickell.
HETEROMORPHA RUFICEPS,	Hodgson.
Paradoxornis ruficeps,	Blyth.

BLACK MYNAH.

Acridotheres tristis,	Blyth.
Paradisea "	Linn.
Gracula gryllivora,	Daudin.

ဇရက်။ ထိန်ကျိုး

GANGES MYNAH.

Acridotheres ginginianus,	Vail.
Turdus "	Latham.
Gracula grisea,	Daudin.

CRESTED MYNAH.

Acridotheres griseus,	Blyth.
Pastor "	Horsfield.
Maina cristalloides,	Hodgson.
Pastor fuscus,	Waglar.
" *mahrattensis,* ?	Sykes.

ဇရက်မောက်တင်။

PIED STARLING.

The pied starling abounds in the compounds and fields of

Tavoy, and is often seen perched upon the back of the buffalo gathering insects.

Stûrnus contra,	Linn.
" *capensis,*	Linn.
Pastor auricularis,	Drapiez.
" *jalla,*	Horsfield.

ဇရက်ချေးစား။ကျွဇရက်။ ထိုလဲ့ပနါဒွ. ကျာပနၢ်အွဉ်

STARLINGS.

The starlings or mynahs are quite abundant. Mr. Blyth has ten species in his catalogue found in Burmah.

TALKING MYNAH.

This is the black mynah, with a yellow head-band, so often seen in cages in this county, and which learns to talk as readily as a parrot.

Gracula religiosa,	Latham.

သာလိကာ။ ထိုလဲ့ဘဲ့နါ. ကျာဘိနၢ်။

INTERMEDIATE MYNAH.

The species noted above is brought from Malacca, but we have an indigenous, intermediate species, between that and *gracula religiosa,* found in South India.

Gracula intermedia,	A. Hay.

သာလိကာ။ ထိုလဲ့ဘဲ့နါ. ကျာဘိနၢ်.

YELLOW-BARRED MYNAH.

Mr. Barbe found a pretty mynah in the Yay forests, with a yellow neck, and yellow bars on the feathers.

Ampeliceps coronatus.

WHITE-HEADED MYNAH.

Another common mynah at Maulmain, of which I sent a specimen to the Asiatic Society's museum, is

Sturnia malabarica,	Blyth.
Paster malabaricus,	Jerdon.
Turdus malabaricus,	Gmelin.

ဇရက်။ ထိုလဲ့အွၤခိုဒ. ဆါရဝ်ဝါခိုဉ်။

BLACK-HEADED MYNAH.

Sturnia pagodarum,	Blyth.
Turdus "	Gmelin.
" *melaocephalus,*	Vahl.
Sturnus subvoseus,	Shaw.

CALORNIS MYNAH.

Calornis affinis, A. Hay.

CANTOR MYNAH.

Calornis cantor, Blyth.
Turdus " Gmelin.
" *chalybeus*, Horsfield.
" *Strigatus*, "

FINCHES AND SPARROWS.

The finches and sparrows are not very numerous in species. Nine are known. The Burmese call all *sa* or *cha*.

YELLOW CAPPED WEAVER BIRD.

A small finch with a yellow head is very common from Mergui to Toungoo. It is remarkable for building pensile nests suspended to the branches of trees. Tall trees are usually selected, but I have their nests in my garden on low citron trees.

Ploceus philippinus, Blyth.
" *baya*, "
Loxia philippina, Strickland.

စာခေါင်းကွက်။

(စာပုတ်တောင်း၊စာပေါင်းတောင်း။ *Tav. Ar.*)

BLACK-HEADED FINCH.

Munia rubronigra, Hodgson.
Lonchura melanocephala, M'Clelland.
Loxia malacca, Latham.
" *indica*, "

TWO-COLOURED FINCH.

Munia undulata Edwards.
Loxia " Latham.
" *punctulata*, "
" *bicolor*, "
Munia lineoventer, Hodgson.

ACUTE-TAILED FINCH.

Munia Molucca ? Blyth.
" *acuticauda*, Hodgson.
Loxia molucca ? Linn.

FIELD SPARROW.

A small bird, sometimes called a field sparrow, is not uncommon.

Loxia striata,	Latham.
Fringilla leuconota,	Temm.
Munia striata,	Blyth.

SENEGAL FINCH.

Estrelda amandava,	Blyth.
Fringilla "	Linn.
" *punicea.*	Horsfield.
" *senegalensis,*	Vieillot.

INDIAN SPARROW.

The common sparrow of the provinces so nearly resembles the European sparrow, that Mr. Blyth originally considered it the same, but he has latterly allowed it to be a distinct species.

Passer indicus, Jardin, and Selby.

MOUNTAIN SPARROW.

This is another European sparrow which Capt. Abbott found on the Island of Ramree. It is the common sparrow in Chusan.

Passer montanus.
Fringilla montana, Linn.

YELLOW SPARROW.

A yellow sparrow is found throughout the country.

Passer flaveolus, Blyth.

BUNTING.

A bunting or ortalan, which inhabits Siberia, is also met in Aracan and Tenasserim.

Euspiza aureola,	Blyth.
Emberiza "	Pallas.
" *sibirica,*	Gmelin.
Fringilla pinetorum,	Lepech.

SKY LARK.

Mr. Blyth describes a lark from Aracan which he says " Very closely resembles the British sky lark in its song and habits."

Alauda gulgula,	Franklin.
" *gangetica,*	Blyth.
" *gracilis,*	"
" *leiopus,*	Hodgson.

TITLARKS AND PIPITS.

Five species of titlarks or pipits, are among our small birds.

BRITISH MEADOW PIPIT.

Mr. Blyth, writing on a collection of more than fifty species of birds and several quadrupeds that Major Phayre had sent him from Pegu, says: "Among the birds, we observe with surprise, an unmistakeable specimen of the common British meadow pipit in its summer plumage. We have never seen this bird from any part of India, though Mr. Gould states it to occur in the west."

Anthus pratensis,	Blyth.
Alauda "	Linn.

TREE PIPIT.

Deudronanthus maculatus,	Blyth.
" *trivialis,*	Sykes.
Anthus macutus,	Hodgson.
" *brevirostris,*	"

RICHARD'S PIPIT.

This is another of our small birds common to Great Britain, and other parts of Europe.

Anthus Richardi,	Vieillot.

SLENDER LARK.

Anthus rufulus,	Vieillot.
" *agilis,*	Jerdon.
" *malayensis,*	Eyton.
" *Pallescens,*	Sundevall.
Slender Lark.	Latham.

WOOD PIPIT.

This bird is described with the habits of the pipits, but it is also related to the wagtails.

Nemoricla indica,	Blyth.
Motacilla "	Gmelin.
" *variegata.*	

ငှက်ရုတတိ။

WAGTAILS.

Three species of wagtail are known.

WATER WAGTAIL.

A water-wagtail bearing considerable resemblance to the European bird, is abundant in the neighbourhood of Maulmain.

It heralds in the dry season, always leaving the coast in the rains, and returning again at their close.

Motacilla luzoniensis,	Scopoli.
" *alba,*	Latham.
" *leucopsis,*	Gould.
" *alboides,*	

သဗွတ်လွယ်။ ထိုစံ၄ဝံ၊ ထိုဝိဝ်ဝဲ၏

SULPHUR WAGTAIL.

Motacilla boarula,	Linn.
" *sulphurea,*	Bechstein.

WAGTAIL.

A species of wagtail is often seen in company with cattle, "following them and gathering the insects that are beaten up by the beasts' foot." Mr. Blyth say: "The bird acquires blue-grey feathers on the head at the vernal moult, which change afterwards to black."

Budytes viridis,	Brown.
Motacilla "	Scopoli.
" *bistrigata,*	Raffles.
Budytes beema,	Sykes.
" *flava,*	Jerdon.
" *neglecta,*	"
" *melanocephala,*	Sykes.
Wagtail lark,	Latham.

မြီးငေါက်။မြီးညောင်။

SOFT-TAILED WARBLER.

Megalurus palustris,	Horsfield.
Malurus marginalis,	Reinwardt.

WREN-LIKE WARBLER.

Prinia rufescens,	Blyth.

YELLOW-BELLIED WARBLER.

Prinia flaviventris,	Blyth.
Orthotomus "	Delessert.

TAILOR BIRD.

Tailor birds are very common at Tavoy, though rare at Maulmain; and they frequently adorned my garden with their curious pendulous nests. One, selected the living leaves of the mulberry tree, which it sewed very cleverly; another, the large leaves of a Malay apple tree, and both sewed their nests in sheltered recesses, where they were in a great measure shielded from the rains.

Orthotomus longicaudata,	Blyth.
Motacilla "	Gmelin.
" *sutoria,*	"
Sylvia guzuratta,	Latham.
" *ruficapilla,*	Hutton.
Orthotomus bennettii,	Sykes.
" *lingoo,*	"
" *sphenurus,*	Swainson.
" *patia,*	Hodgson.

နံပြည်စုတ်။ ဆာ့ဆ့ာဖိ၂. ဆီဆ့ပြီင်း

GLASS WARBLER.

Cistieola cursitans,	Jerdon.
Prinia "	Franklin.

OLIVE PALLORNEUM.

Swainson calls this bird a babbler.

Pellornium ruficeps,	Swainson.
" *olivaceum,*	Jerdon,
Cinclidia punctata,	Gould.
Megalurus ruficeps,	Sykes.

FAN-TAILED BABBLER.

A pretty bird, with a fan-tail, related to the babblers according to Swainson, is very common in the province of Tavoy.

Pomatorhinus olivaceous.
" *lencogaster.*
" *montanus.*

သွေးရှည်။ ထိ၂ မွဲ၂. ထိန်ဘာန်ဘဲ။

PHAYRE'S POMATORHINUS.

There is another species of pomatorhinus in Aracan, "having the crown of the same olivaceous hue as the rest of the upper-parts, this being of a greener tinge than in the Darjeeling birds; the feathers above the lores short and white, like the rest of the supercilium; and the rufous of the under-parts is much weaker and more fulvescent."

Pomatorhinus Phayrei.

WHITE-THROATED POMATORHINUS.

Major Tickell met with a new species of pomatorhinus at an altitude of five or six thousand feet in province Amherst. Mr. Blyth says, though most closely affined to *P. Phayrei,* we consider this to be evidently a distinct race, the white upon the throat is more extended and passes gradually into the rufescent hue of the breast."

Pomatorhinus albogularis, Blyth.

Other species are

Pomatorhinus hypoleucos,	Blyth.
" *schisticeps,*	Hodgson.

ABBOTT'S TRICHASTOMA.

Trichastoma abbotti,	Blyth.
Malacocincla,	"

Other species of this genus are

Trichastoma crispifrons,	Blyth.
" *brevicaudatus,*	"

PHAYRE'S ALCIPPE.

Alcippie Phayrei,	Blyth.

NIPALESE ALCIPPE.

Alcippe nipalensis,	Blyth.
Siva "	Hodgson.

Of related genera to the above are the following small birds :

MIXORNIS GULARIS,	Horsfield.
Timalia gularis,	"
Prinie pileata,	Blyth.
MIXORNIS CHLORIS,	Hodgson.
Mixornis ruficeps,	"
Motacilla rubicapilla ?	Tickell.
TIMALIA PILEATA,	Horsfield.
CHRYSOMMA SINENSE,	Jardin.
Parus sinense,	Latham.
Emberiza calfat,	"
Gotah Finch,	"
STACHYRIS NIGRICEPS,	Hodgson.
" CHRYSAEA,	"
" NIGRIFRONS,	Blyth.

SHRIKES.

The shrike family has representatives in the country.

WHITE-BELLED SHRIKE.

This is a new species of shrike, of which I sent Mr. Blyth his only specimen. He describes it as "very closely allied to *L. Hardwickii,* Vigors; from which it differs—1, in having the entire crown nigrescent, passing gradually from the black of the forehead to dark ashy on the nape; the ear-coverts being uniformly coloured with the feathers superiorly adjacent: 2, in having the rump and upper tail-coverts of the same deep maronne colour as the back and scapularies:—3, in the much greater development of the ferruginous margins of the great

wing-coverts and tertiaries :—and 4, in having the under-parts uniformly white, a little subdued, and tinged with a very faint blush, but having no trace of rufous on the flanks and elsewhere."

Lanius hypoleucos, Blyth.

RUFOUS GAMPSORHYNCHUS.

Gampsorhynchus rufulus, Blyth.

BLACK-HEADED SHRIKES.

Lanius nigriceps, Blyth.
Collurio nigriceps, Franklin,
Lanius nasutus, Scopoli.
" *antiguanus,* Latham.
" *tricolor,* Hodgson.
Indian shrike, Latham.

GREY-BACKED SHRIKE.

Lanius tephronotus, Blyth.
Collurio " Vigors.
Lanius nipalensis, Hodgson.
Grey-backed Shrike, Latham.

RED-HEADED SHRIKE.

A brown shrike with a reddish head is not uncommon.

Lanius superciliosus, Linn.
" *collurioides,* Lesson.
" *cristatus,* Linn.
" *phœnicurus,* Pallas.
" *rutilis,* Latham.
" *melanotis,* Valenciennes.
" *ferangiceps,* Hodgson.
" *arenarius,* Blyth.
" *lucionensis,*
" *ruficeps,* Bechstein.
" *rufescens,* Cuvier.

TIGER SHRIKE.

Lanius tigrinus, Drapiez.
" *magnirostris,* Lesson.
" *strigatus,* Eyton.

DRONGO SHRIKE.

Teprodornis pelvica. Blyth.
Teuthaca " Hodgson.

PONDICHERRY SHRIKE.

Tephrodornis pondiceriana, Hordeo.
Muscicapa " Gmelin.
" *philippensis,* Latham.

Lanius	*keronla.*	Gray.
"	*muscipetoides,*	Franklin.
"	*sordidus,*	Lesson.
"	*superciliosus,*	Swainson.
Tenthaca	*leucurus,*	Hodgson.

Add to the above the following species:

TEPHRODORNIS GRISOLA,	Blyth.
HEMIPUS OBSCURUS,	Horsfield.
Muscicapa obscura,	"
" *hirundinaceus,*	Reinhardt.
Tephrodornis "	Swainson.
HEMIPUS PICATA,	Blyth.
Muscicapa picata,	Sykes.
" *tyrannides,*	Tickell.
" *hirundinacea,*	Jerdon.
" *variegata ?*	Linn.

ANT-THRUSHES.

Three species of ant-thrush, pitta; and three of the related genus *enicurus*, are known in Burmah.

BLUE ANT-THRUSH.

Our ant-thrushes are splendid green birds, with crimson crowns and blue mantles, with sometimes shades of green on the breast.

Pitta cyanoptera,	Temminck.
" *malaccensis,*	Blyth.

မြေခုန်း မြေငုံး ထိုလာဖိုး. ထိုင်လါအဲး။

A related species with the same vernacular names is:

Pitta cyanea,	Blyth.

NIPALESE ANT-THRUSH.

Pitta nipalensis,	Blyth.
Paludicola "	Hodgson.
Pitta nuchalis,	Blyth.

ENICURUS.

Enicurus maculatus,	Vigors.
Enicurus fuliginosus,	Hodgson.
Enicurus schistaceus,	"
" *immaculatus,*	"

TRUE THRUSHES.

Twelve species belonging to the family of the true thrushes *merulidæ*, have been found in Burmah.

TEMMINCK'S THRUSH.

Myiophonus Temminckii,	Vigors.
" *nitidus,*	Gray.

ZOOTHERA THRUSH.

Specimens of this thrush have been furnished from Aracan. It has a large bill, olive-brown in its whole upper parts, with an intermixture of white on the under part. "The plumage of the nestling much resembles the garb of an English blackbird."

Zoothera marginata.

UNASSUMING THRUSH.

A thrush with "upper parts greenish olive-brown," and white on the belly, is found from Aracan to the Straits of Malacca.

Turdus rufulus,	Drapier.
" *modestus,*	Eyton.
" *concolor ?*	Temminck.
" *javanicus ?*	Horsfield.

OLIVE THRUSH.

A thrush with upper parts dull olive, and under parts light rufescent, is described from Aracan.

Geocichla citrina,	Lath.
Turdus Macei,	Vieillot.
" *lividus,*	Tickell.
" *rubecula,*	Horsfield.

STONECHAT.

Kittacincla macrourus,	Vaillant.
Turdus "	Gmelin.
" *tricolor,*	Vieillot.
Gryllivora longicauda,	Swainson.

DIAL.

In Aracan, says Major Phayre, this bird is called *tha-paik-lway,* "Priests begging dish suspended," from the supposed resemblance of the black mark on the breast to a Buddhist Priest's begging dish, *tha-paik,* suspended from his neck.

Copsychus saularis,	Edwards.
Gracula "	Linn.
Gryllivora intermedia,	Swainson.
Dahila docilis,	Hodgson.

သမိုင်းလွယ်။

TWO COLOURED STONECHAT.

Pratincola caprata,	Blyth.
Motacilla "	Linn.
" *luctionensis,*	Latham.
" *sylvatica, ?*	Tickell.

Saxicola fruticola,	Horsfield.
" *bicolor,*	Sykes.
" *erythropygia,*	"

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WHITE-TAILED RED BREAST.

Erythrosterna leucura,	Blyth.
Muscicapa "	Gmelin.
" *parva,*	
Saxicola rubeculoides,	Sykes.
Synornis jonlaimus,	Hodgson.
White-tailed red-breast,	Latham.
Maculate flycatcher, (probably)	"

ANTHIPES.

Anthipes moniliger,	Blyth.
Dimorpha ? "	Hodgson.

MUSCICAPULA.

Muscicapula melanoleuca,	Blyth.
Muscicapa maculata,	Tickell.

ETHERIAL WARBLER.

Cyornis rubeculoides,	Gould.
Phœnicura "	Vigors.
Niltava brevipes,	Hodgson.
Muscicapa rubecula,	Swainson.
Etherial warbler,	Latham.

HEMICHELEDON.

Hemicheledon latirostris,	Blyth.
Muscicapa "	Raffles, Swainson.
" *poonensis,*	Sykes.

TYRANTS.

Of the *tyrannidæ*, or tyrant family, Mr. Blyth has eight specimens from this country.

ARUNDINAX OLIVACEOUS,	Blyth.
Phragmaticola "	Jerdon.
ACROCEPHALUS BRUNNESCENS,	Blyth.
Acrobates "	Jerdon.
Acrocephalus arundinaceus.	
" *turdoides.*	
ACROCEPHALUS DUMETORUM,	Blyth.
Silvia montana,	Horsfield.

ABRORNIS SCHISTICEPS,	Hodgson.
Phyllopneuste xanthoschistos,	"
PHYLLOSCOPUS VIRIDIPENNIS,	Blyth.
" VIRIDANUS,	"
" BRUNNEUS,	"
" FUSCATUS,	"

NUTHATCH.

A nuthatch with a black streak on the back of the head has been found in Burmah.

Dendrophia frontalis,	Swainson.
Sitta "	Horsfield.
" *velata.*	Temminck.
" *corallina,*	Hodgson.

NEPAL CATERPILLAR-CATCHER.

Graucalus macei,	Lesson.
" *papuensis,*	
" *nipalensis,*	Hodgson.
Ceblepyris javensis, ?	Horsfield.

BLUE-GREY THRUSH.

Campephaga fimbriata,	Strickland.
Ceblephyris fimbriatus,	Temminck.
Lanius silens,	Tickell.
Volvocivora melaschistos,	Hodgson.
Graucalus maculosus,	M'Clelland.
Ceblepyris lugubris,	Sundevall.
Blue-grey thrush,	Latham.

BLACK-WINGED CATERPILLAR-CATCHER.

Campephaga melanaptera.

ROSY-RED BIRD.

The male red bird is a beautiful little creature, with a black head, and is usually seen in company with the female, which has yellow on her feathers wherever the male has red.

Pericrocotus roseus,	Blyth.
Phanicornis affinis,	M'Clelland.
Muscicapa "	Vieillot.

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PRINCE BIRD.

Mr. Blyth makes the *hgnet-men-tha,* or Prince bird, another species, "Young male like female but tinged with red on forehead, throat, wings, and tail."

Pericrocotus speciosus,	Gould.
Turdus "	Latham.
Muscipeta princeps,	Vigor.

MALABAR PERICROCOTUS.

Pericrocotus peregrinus,	Gould.
" *cocineus,*	Gmelin.
" *malabaricus,*	"
Parus peregrinus,	Linn.
Motacilla cinnamonea,	"

BROAD-BILL.

Eight species of manakins or broad bills, birds with short and excessive broad-bills, have been found in Burmah.

CORYDON SUMATRENSIS,	Blyth.
Eurylaimus "	Raffles.
" *corydon,*	Temm.
" *Temminckii*	Lesson.
EURYLAIMUS JAVANICUS,	Horsfield.
Eurylaimus Horsfieldi,	Temm.
EURYLAIMUS OCCHROMALUS,	Raffles.
Eurylaimus cucullatus,	Temm.
CYMBIRHYNCHUS NASUTUS,	Blyth.
Todus "	Latham.
" *macrorhynchus,*	Gmelin.
CYMBIRHYNCHUS AFFINIS,	Blyth.
PSARISOMUS DALHOUSIÆ,	Gould.
Eurylaimus "	Jameson.
" *psittacinus,*	Muller.
Raya sericeogula,	Hodgson.
SERILOPHUS LUNATUS,	Blyth.
Eurylaimus "	Gould.
Serilophus lunulatus,	Swainson.
SERILOPHUS RUBROPYGIA,	Blyth.
Raya "	Hodgson.
Eurylaimus lunatus,	Horsfield.

EUROPEAN SWALLOW.

The European swallow is one of our common visitants.

Hirundo rustica,	Linn.
" *gutturalis,*	Scopoli.
" *javanica,*	Sparruman.
" *panayana,*	Latham.
" *jewan,*	Sykes.

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MARTIN.

The European martin has been met in Province Amherst.

Hirundo urbica,	Linn.

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SHORT TAILED SWALLOW.

Hirundo sinensis,	Hardwicke.
" *brevicaudata,*	M'Clelland.

BROWN-COLOURED SWALLOW.

Artamus fuscus,	Vieillot.
Ocypterus rufiventer,	Valenciennes.
Artamus leucorhynchos,	McClell.
Murasiny chatterer,	Latham.
BROWN-COLOURED SWALLOW,	"

PARADISE EDOLIUS.

The loud, flute-toned edolius might be termed the Tenasserim nightingale, for it is considered by the Karens as the sweetest singer of their forests, and it seems to delight in cheering them at eventide. There was an old friend that used to come at sunset every evening, and perch upon a guava bough near my dwelling in Dong-yan ; and there it would sit and pour forth one incessant stream of melody for a half hour at a time. This bird has a glossy, jet black dress, with two remarkably long shafts to its tail feathers, broadly barbed on the inner side towards the extremity; the stem however, giving one twist, so that the inner part appears to be the outer one.

Edolius paradiseus,	
Dicrurus platurus,	Vieillot.
Cuculus paradiseus,	Linn.
Chibia malabaroides,	Hodgson.
Edolius "	
" *grandis,*	Blyth.
Lanius malabaricus,	Latham, not Sonnerat.

ငှက်တော်။ ထိုးကျုံ. ထိုင်ချုန်

KING CROW.

The king crow is a small black bird, resembling the preceding, but without the tail feathers. It derives its English name from its bravery in chasing away the crows. Both the Burmese and Karens often call the edolius by the same name that they do this bird. A specimen that I sent Mr. Blyth, he wrote was

Dicrurus macrocercus,	Vieillot.
" *indicus,*	Hodg. Stevens.
" *forficatus,*	Horsfield.
" *fingah,*	Blyth.
" *balicassius,*	Sykes, Jerdon.
Bhuchanga albirictus.	Hodg.

ငှက်တော်။ ထိုးစံးရွာ. ထိုးစံးခိုး. ထိုင်စံင်ကွဲ။

There are five other species of *dicruridae*, or drongo shrikes, besides the two noted above.

FLAT BILLED CHIBIA.

Chibia aënea,	Vail.
Diocrus aëneus,	Vieillot.
" *aëratus,*	Stevens.
Chibia muscipetoides,	Hodgson.

RANGOON EDOLIUS.

Bhringa vernifer,	Blyth.
Edolius "	Temm.
" *rangonensis,*	Horsfield.
Bhringa tedirostris.	Hodgson.

LONG-TAILED KING CROW.

Dicrurus longicaudatus,	Hay.
" *macrocercus,*	Jerdon.
" *cineraceus,*	Gray.

INTERMEDIATE KING CROW.

Dicrurus intermedius,	Blyth.

ASHY KING CROW.

Dicrurus cineraceus,	Blyth.
Edolius "	Horsfield.
Dicrurus leucophæus,	Vieillot.
" *ceylonensis?*	Stevens.

FLY CATCHERS.

Five species of fly-catchers are not uncommon.

PARADISE FLY-CATCHER.

This is a handsome, crested, black-headed bird, with chesnut back and wings, and a very long tail of the same colour, a few of the tail feathers being prolonged much beyond the others. It is quite common throughout the Provinces, but is rarely seen in the neighbourhood of large towns.

Tchitreadæ affinis,	Hay.
" *paradisi,*	
Muscicapa castanea?	Temm.

AZURE-HEADED FLY-CATCHER.

Myiagra cærulea,	Vail.
Muscicapa "	Vieillot.
" *occipitalis,*	Vigors.
" *cæruleocephala,*	Sykes.
Azure-headed Flycatcher,	Latham.

MIAGRA AZUREA.

ASHY-HEADED FLY-CATCHER.

Cryptolopha cinereocapilla,	Swainson.
Muscicapa "	Vieillot.
Platyrhnchus ceylonensis,	Swainson.
Cryptolopha poiocephala,	"
Muscicapa nitida,	Latham.

BROAD-TAILED FLY-CATCHER.

Leucocerea fuscoventris,	Franklin.
Muscicapa sannio,	Sundevall.
Muscylva albogularis?	Lesson.

PINK-EARED BULBOUL.

Bulbouls, so often celebrated in Persian and Hindu poetry, are numerous in Burmah. The pink-eared bulboul is one of the most common birds in the neighbourhood of Tavoy. It is crested like the American cedar bird, which it resembles in habit, for it is an inveterate fruit eater, but has a little crimson tuft over the eye, from which it derives its specific name. Large flocks tenant the shrubbery in the suburbs of Tavoy, and may be seen coming into town early every morning in little armies; and whatever garden contains a berry-bearing tree, is sure to be the residence throughout many hours of the day of a few pink-eared bulbouls.

Pycnonotus jocosus,	Linn.
Gracula cristata,	Scopoli.
Lanius emeria,	Shaw.
Sitta chinensis,	Gray.

ပုတ်ဖင်ဒို့ (*Aracan.*) ပုတ်ဆိကူး (*Tavoy.*) ထိုဒျာံဒျာ. ဘဝလိး

BLACK-EARED BULBOUL.

There is another bulbeul here with the head wholly black, but crimson under the tail, like the preceding species. The natives do not distinguish them.

Pycnonotus atricapillus?

AMHERST BULBOUL.

A bulboul, from Amherst, is said to be a representative of the Aracan

Pycnonotus hæmorrhous,		
Turdus	"	Gmelin.
Hæmatornis pusillus,		Blyth.
"	*pseudocafer,*	"

YELLOW AND GREEN BULBOUL.

This is a very common bird in Maulmain, and in the dry season its musical, though little varied notes, are often heard. It is rarely seen in Tavoy.

Pycnonotus Finlaysoni.

ပုတ်ဝါ. ထိုဘာ့ဖျာ. ထိုဉ်ဘိဖ

YELLOW BULBOUL.

The yellow bulboul differs very slightly in its general appearance from the preceding. Mr. Blyth received it from Aracan, but I believe it also frequents our groves.

Pycnovotus flavescens.

ပုတ်ဝါ. ထိုဘာ့ဖျာ. ထိုဉ်ဘိဖ

BROWN-BREASTED BULBOUL.

A bulboul, nearly related to the pink-eared species, but with a brown-breast, inhabits the Provinces.

Pycnonotus nigropileus, Blyth.

BLACK-CRESTED BULBOUL.

Another bulboul has a black-crested head with a yellow body, found in Aracan by Major Phayre.

Pycnonotus melanocephalus.

ပုဒ်ဝါမောက်တင်း

Six species of bulbouls are referred to the genera. *Hypsipetes,* Iole, and *Hemixos.*

HYPSIPETES PSAVOIDES,	Vigors.
" CONCOLOR,	Blyth.
" M'CLELLANDII,	Horsfield.
" TICKELLI,	
IOLE VIRESCENS,	Blyth.
HEMIXOS FLAVALA,	Hodgson.

OCHRE-HEADED BULBOUL.

The ochre-headed bulboul is occasionally seen in the Tenasserim Provinces, and Mr. Blyth remarks that it is "a favorite cage bird with the Malays."

Criniger ochrocephalus,	Gmelin.
Turdus "	Gmelin.
Tricophorus crispiceps,	Blyth.

YELLOW-BELLIED BULBOUL.

Another bulboul is mentioned from Aracan, allied to a yellow bellied African species.

Cringer flaveolus.
Trichophorus " Gould.

BLACK-HEADED BULBOUL.

This bird has a black but crestless head, with a yellow body common in Aracan.

Brachypodius melanocephalus,	Gmelin.
Turdoides atriceps,	Temminck.
Ixos metallicus,	Eyton.

ပုဒ်ဝါ.

GREEN BULBOULS.

Four species of green bulbouls, green, with a little blue on the breast and wing, are denizens of our forests.

PHYLLORNIS HARDWICKII	Delessert.
Chloropsis "	Jardine.
" *curvirostris,*	Swainson.
" *cyanoptera,*	Hodgson.
" *chrysogaster,*	M'Clelland.
" *auriventris,*	Guerin.

ပိုင်းတန်သယ်

PHYLLORNIS AURIFRONS,	Jardine.
Chloropsis "	"

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PHYLLORNIS COCHINCHINENSIS,	Strickland.
Turdus, "	Latham.
" *malabaricus,*	"
Chloropsis "	Eyton.
Philemon nigricollis?	Vieillot.
Meliphaga javensis,	Horsfield.
Phyllornis moluccensis,	Gray.

ငှက်စိမ်။

Of the genera *Iora*, and *Irena*, three species are known in the country.

IORA INNOTATA,	Blyth.
" TYPHIA,	Edwards.
Motacilla "	Linn.
Ficedula bengalensis,	Brisson.
IRENA PUELLA,	Horsfield.
Coracias "	Latham.

ငှက်ဗျားစိပ်။

MANGO BIRD.

The mango bird, or black-headed oriole, famous in Indian poesy, is one of the most numerous of Tenasserim songsters; it comes to our gardens at early dawn, when its rich mellow notes are heard pealing far through the mango bowers. It is a large yellow bird, with a black head, easily recognized.

Oriolus melanocephalus,	Linn.
" *maderaspatanus,*	Franklin.
" *M'Coshii,*	Tickell.
" *Hodgsonii,*	Swainson.

ငှက်ဝါ။ ထိုဘေ့ ထိုဂ်တီယဃီ။

INDIAN ORIOLE.

This is another mango bird, differing slightly from the preceding, and for which the natives have no name to distinguish it

from the other, though they are aware of the existence of the two species.

Oriolus indicus,	Jerdon.
" *chinensis,*	
" *cochinchinensis,*	
" *coronatus?*	Swainson.
" *hippocrepis,*	Wagler.
Le Loriet des Indies,	Buffon.

TRAILL'S ORIOLE.

Oriolus Traillii,	Gould.

WHITE EYED WARBLER.

A small bird which Mr. Blyth refers to the honey-suckers, but which Swainson calls the white-eyed warbler, inhabits our jungles.

Zosterops palpebrosus.	
Sylvia palebrosa,	Temm.
" *annulosa,*	Swainson.
Zosterops maderaspatana.	
" *madagascariensis.*	

HONEY-SUCKER.

A honey-sucker, a small bird with a long bill, yellow and olive green back, is often seen in our gardens.

Arachnothera magna,	Blyth.
Cinnyris "	Hodgson.

ပန်းပွင့်စုတ်။ ထိုးကွံ့ခေ့. ထိုင်သကွံ့စီ။

LONG-BILLED HONEY-SUCKER.

Arachnothera affinis,	Blyth.
" *inornata,*	"
Cinnyris longirostris,	Jerdon.

GOALPARA SUN-BIRD.

We have several species of sun-birds on our coast resembling the humming birds of America, for which they are sometimes mistaken. Their gorgeous plumage may be often seen glistening in the sun as they drink upon the wing the nectar of the flowers. The goalpara is one of the largest of the class, and is sometimes called the goalpara creeper. It is an elegant little creature, with a brilliant carmine breast and neck, and a splendid cap of dark shining green.

Nectarinia goalpariensis,	Jardine.
Certhia "	Royle.
Cinnyris Vigorsii,	Sykes.
Nectarinia Seheriæ,	Tickell.

Cinnyris miles,	Hodgson.
" *labecula,*	M'Clell.
Nectarinia Lathami,	Jardine.

မန်းဌင့်စုတ်။ ထိုးဘကွံးစေ့. ထိုင်သကွံစီ။

OLIVE-GREEN SUN BIRD.

The most abundant sun bird in the Tenasserim Provinces is perhaps this species; which Mr. Blyth describes thus: "Colour of the upper-parts dull olive-green, brightening a little on the rump: beneath, moderately bright king's yellow; and the axillary tuft intense yellow with flame-colour anteriorly: throat and front of the neck very dark glossy purple, margined laterally and at the gorget with bright steel-purple, below which is a trace of a narrow band of dark red."

Nectarinia flammaxillaris,	Blyth.
" *jugularis,*	Vieillot.

Other species of *Nectarinia* are:

NECTARINIA GOULDIÆ,	Gould.
Cinnyris "	Vigors.
NECTARINIA AFRA,	Blyth.
Certhia "	Linn.
Cynnyris smarugdinus,	Vieilott.
NECTARINIA ASIATICA,	Blyth.
Certhia "	Linn.
" *mahrattensis,*	Latham.
" *chrysoptera,*	"
" *cirrhata,*	"
" *currucaria,*	"
NECTARINIA MALACCENSIS,	Swainson.
certhia "	Scopoli.
" *lepida,*	Latham.
Nectarinia javanica,	Horsfield.
NECTARINIA HASSELTII,	Temminck.
" *phayrei,*	Blyth.
Certhia sperata,	Raffles.
" *brasiliana*	Shaw.

RED-BACKED SUN BIRD.

A small black sun bird with a brilliant scarlet back is another of our gaudy little visitors.

Dicaeum cruentatum,	Edwards.
Certhia cruentata,	Linn.
" *coccinea,*	Scopoli.
" *erythronotus,*	Latham.
Dicaeum rubrocanum,	Temm.

Three other species of *diceum* are:

DICEUM TRIGONOSTIGMA,	Sonnerat.
Certhia "	Scopoli.
" *cantillaus,*	Latham.

Diceum croceoventie,	Vigors.
DICEUM CHRYSORRHŒUM,	Temm.
" *chrysochlorum,*	Blyth.
DICEUM MINIMUM,	Blyth.
Nectarinia minima,	Tickell.
Certhia erythrorhyncha,	Latham.

GREEN PIGEONS.

Those handsome birds the green pigeons, are represented in Burmah by five different species.

YELLOW-BREASTED GREEN PIGEON.

This is the most common green pigeon in the Provinces. The male is "distinguished by having a large buff-orange patch on the breast, and above this a lilac band."

Treron bicincta,		Vieillot.
Vinago "	*(male.)*	Jerdon.
" *unicolor,*	*(female.)*	"
" *vernans,*		Lesson.

ငူ။ စွားချိုး. ပကွားချာဉ်

YELLOWISH-HEADED GREEN PIGEON.

The natives see no difference between this species and the two preceding. "It is distinguished by having the anterior half of the head, and the medial portion of the tail, of the same yellowish green as the breast."

Treron viridifrons.

CURVE-BILLED GREEN PIGEON.

Treron aromatica,	Blyth.
Columba "	Gmelin.
" *curvirostris,*	"
" *tannensis,*	"

HARDWICKE'S GREEN PIGEON.

Treron phœnicoptera,	Gould.
Columba "	Latham.
" *militaris,*	Temm.
" *hardwickii,*	Grey.

MALABAR GREEN PIGEON.

Treron malabarica,	Jerdon.
Vinago aromatica,	"
" *affinis,*	"
Columba pompadora?	Gmelin.

FRUIT PIGEONS.

Three species of large fruit-pigeons are not uncommon.

CARPOPHAGA SYLVATICA,	Blyth.
Columba "	Tickell.
Carpophaga aenea.	

ပြိုမတိး။ ဘုမ္မတိး။

CARPOPHAGA INSIGNIS,	Blyth.
Ducula "	Hodgson.
Carpophaga cuprea,	Jerdon.
CARPOPHAGA BICOLOR,	Sonn.
Columba "	Scopoli.
" *alba,*	Gmelin.
" *littoralis,*	Temm.

POMPADOUR WOOD-PIGEON.

This is a wild pigeon whose " general colour is deep vinaceous ruddy."

Alsocomus puniceus,	Tickell.
Columba "	Linn.

INDIA ROCK-PIGEON.

This is the bird from which the domestic pigeons of India are derived, and which we have tame, if not wild. The principal difference, Mr. Blyth says, between the pigeon of India and Europe is, that the former " has a white rump and the latter a deep ash-coloured rump. There appears to be no other distinction between them; unless it be that the play of colours on the neck is finer in the India bird."

Columba livia,	Brisson.
" *affinis,*	Blyth.
" *intermedia,*	Strickland.
" *oenas.*	

ခို။ ကၢကၣ. ကးကၣ်။

AMBAYNA PIGEON.

Macropygia amboinensis,	Blyth.
Columba "	Linn.

TURTLE DOVE.

The plaintive coo of this speckled turtle dove is heard alike in the neighborhood of our large towns, and in the depths of our thickest forests. It if often seen in cages, and is the turle dove of the Bible.

Turtus suratensis.	
Columba turtur,	Linn.
" *suratensis,*	Latham.
" *tigrina,*	Temm.

ဖြိုးလယ်ပြောက်။ ထိုးလိုး့ ထိုးလွိုး့
ထိန်လွှိုဘူ။ ထိန်လွှိုနိုန်။

RING-DOVE.

A turtle dove of a brick colour, with a half collar on the neck, sometimes called the ring-dove, is not uncommon.

Turtur humilis.	
Columba "	Temm.
" *risoria (minor.)*	Franklin.
Asiatic pigeon,	Latham.

ဖြိုးလင်းပြာ။ ထိုးလွှိ. ထိန်လွှိ

FOX-COLOURED TURTLE DOVE.

This is a brownish dove, seen occasionally, but not often.

Turtur orientalis,	Blyth.
Columba "	Latham.
" *meena,*	Sykes.
" *gelastis,*	Temm.
" *agricola,*	Tickell.
" *ferrago,*	Eversmann.
" *turtur,*	Raffles.

ဖြိုးပိန်တူမ။ ထိုးပံ. ထိန်ပတ်။

GROUND-PIGEON.

A handsome, dark-green ground-pigeon, is not uncommon.

Chalcophaps indicus,	Edwards.
Columba indica,	Linn.
" *pileata.*	Scopoli.
" *javanica ?*	Gmelin.
" *cyanocephala,*	"
" *albicapilla,*	"
" *cyanopileata,*	Bonnaterre.
" *griseocapilla,*	"
" *superciliaris,*	Wagler.

ဖြိုးညိုးဂျိုးညိုး ထိုးလွှံခ. ထိန်လွှိုခါ

NICOBAR PIGEON.

The Nicobar pigeon with its elegant neck-frill, is sometimes seen in confinement, and the Burmese call it by the same name that they do the partridge, and roller. I have never met with

it in the jungles, although some of the natives tell me it is found there.

Calænas nicobarica,	Blyth.
Columba "	Linn.
" *gallus,*	Wagler.
Goura nicobarica.	
Geophilus nicobarensis.	

ခါ။

GREEN-NECK PEACOCK.

The handsomest peacocks perhaps in the world inhabit our forests in great numbers. They do not usually approach the towns, though I have often seen them in the neighborhood of Burman villages. The Burmese have a saying, that "wherever there are peacocks, there are tigers."

Pavo muticus,	Vieilott.
" *spiciferus,*	"
" *aldrovandi,*	Wilson.
" *javanicus,*	Horsfield.
" *japonensis,*	Brisson.

ဌဒေါင်း။ ထိၵရှုး. ထိန်ပှက် တၢန်တန်

PEACOCK-PHEASANT.

The peacock-pheasant is found from Mergui to Shwaygeen and Aracan.

Polyplectron chinquis,	Temm.
" *albo-ocellatum,*	Cuvier.
" *lineatum,*	Gray.
Pavo tibetanus,	Linn.

ဒေါင်။ ဒေါင်းကုလါ။ ထိၵရှုးဖွဲ့. ထိန်ဗှိုးပှဲ့

ARGUS PHEASANT.

The Argus pheasant, or Malay peacock, is found at Mergui.

Argus giganteus,	Temm.
Phasianus argus,	Linn.
Malay peacock,	Latham.

JUNGLE FOWL.

Wild fowls are so numerous, that the crowing of cocks at dawn of day in the deepest parts of uninhabited jungles, is quite as loud as in the centre of villages. All our domestic fowls are supposed to be derived from this species, which differs from the jungle fowl of Ceylon and Hindustan.

Gallus ferrugineus,	
" *bankivus,*	Temm.

Phasianus gallus,	Linn.
Hackled partridge,	Latham.
Gallus pseudhermaphroditus,	Blyth.

GREAT FIRE BACKED PHEASANT, OR MACARTNEYI COCK.

EUPLOCOMUS VIEILLOTTI,	Blyth.
Phasianus rufus,	Raffles
Gallus macartneyi,	Temminck.

BURMESE PHEASANT.

EUPLOCOMUS LINEATUS,	Belanger.
Phasianus "	Latham.
" *reynandii,*	Lesson.
" *fasciatus,*	M'Clelland.

ရစ်။ ထံၜဝံၤ. ထိန်ဂိန်။ထိၢန်ဝိန်

GALLOPHASIS LINEATUS.

GUINEA FOWL.

The guinea fowl has been introduced in various parts of Burmah, but not extensively.

Numida melagris,	Linn.
" *galeata,*	Pallas.

PHAYRE'S FRANCOLIN.

This is a large splendid bird of the partridge tribe, found throughout the country.

Francolinus phayrei,	Blyth.
Perdix "	"

RUDDY-NECKED WOOD-PARTRIDGE.

Arboricola rufogularis	Blyth.

BLACK-NECKED WOOD-PARTRIDGE.

Arboricola atrogularis,	Blyth.

Other wood-partridges are :

ARBORICOLA BRUNNEOPECTUS.
" INTERMEDIA.

ROLLULUS OCELLATUS,	Hardwicke.
Tetrao "	Raffles.
Perdix oculea,	Temm.
ROLLULUS CRISTATUS,	Blyth.
Columba cristatus,	Gmelin.

QUAILS.

Mr. Blyth identifies five species of quails among our birds.

COMMON QUAIL.

Coturnix communis,	Bonnaterre.
Tetrao coturnix,	Linn.
Coturnix major,	Brisson.
" *dactylisonans,*	Temm.
" *europœus,*	Swainson.
" *vulgaris,*	Jardine.

RAIN QUAIL.

Coturnix coromandelica,	Blyth.
Tetrao coromandelicus,	Gmelin.
Coturnix textilis,	Temm.

PAINTED QUAIL.

Coturnix chinensis,	Gould.
Tetrao "	Linn.
" *manillensis.*	Gmelin.
Coturnix, philippensis,	Brisson.
" *excalfatoria,*	Temm.
" *flavipes,*	Blyth.

THREE-TOED QUAIL.

The three-toed quail is a common bird on the sea-coast.

Turnix atrogularis.	
" *ocellatus,*	Sonn.
Oriolus ocellatus,	Scopcli.
Tetrao luzoniensis,	Gmelin.
Hemipodius thoracicus,	Temm.
" *atrogularis,*	Eyton.

ဝုန်း။ စၢ့ဘျူၢ်. ထိဉ်လွံၢ်ကလုဉ်

BUSTARD QUAIL.

Turnix dussumieri,	Blyth.
Hemipodius "	Temm.
" *maculosus ?*	"
Turnix tanki,	Buch. Hamilton.

FLORIKEN.

" A straggler of this species," says Mr. Blyth, " is recorded to have been shot at Sandoway, Aracan, but otherwise the genus is unknown on the eastern side of the Bay of Bengal."

Sypheotides aurititus,	Jardine.
Otis aurita,	Latham.
" *fulva,*	Sykes.
" *atriceps,*	Gray.
" *indica,*	Shaw.

The two following species of an undetermined family, Mr. Blyth places here.

GLAREOLA ORIENTALIS,	Leach.
" *pratincola,*	
" *torquata,*	
GLAREOLA LACTEA,	Temm.
" *orientalis,*	Jerdon.

BASTARD FLORIKEN.

Esacus recurvirostris,	Blyth.
Oedicnemus "	Cuvier.
Carvanica grisea,	Hodgson.

THICK-KNEE.

Oedicnemus crepitans,	Blyth.
Charadrius oedicnemus,	Linn.

SPUR-WINGED PLOVER.

A species of plover with a spur on the wing is a common bird.

Pluvianus spinosus.	
Hoplopterus ventralis,	Hardw.
Charadcius "	Wagler.
" *Duvaucelei,*	Lesson.

တီတီတူ။ တီတီဒူ။ ငှက်တလိုင်း။ *(Aracan.)*

ထိၵတခ့ၢတ့. ထိန်တ့ဝံ၎။ ထိန်တံါတြ။

Other species of plover are :

Særciophorus bilobus,	Blyth.
Chadrius "	Gmelin.
LOBIVANELLUS GŒNSIS,	Gould.
Parra "	Gmelin.
Charadrius atrogularis,	Wagler.
SQUATAROLA HELVETICA,	Blyth.
Tringa "	Gmelin.
" *squatarola,*	Linn.
Charadrius hypomelas,	Pallas.
Vanellus griseus,	Brisson.
" *melanogaster,*	Bechstein.
CHARADIUS VIRGINICUS,	"
" *pluvialis,*	Wilson.
" *marmoratus,*	Temm.
" *pectoralis,*	Vieillot.

Charadius zanthocheilus? Wagler.

HIATICULA GEOFFROYI, Blyth.
Charadius " Wagler.
Hiaticula rufinus, Blyth.

HIATICULA LESCHENAULTII? Blyth.
Charadius " Lesson.
" *cirripedesmos,* Wagler.
" *rufinellus* Blyth.

HIATICULA CANTIANA, Blyth.
SYN. *Charadicus cantianus,* Latham.
" *alexandrinus,* Hasselquist.
" *littoralis,* Bechstein.
" *albifrons,* Meyer.

HIATICULA PHILIPPINA, Sonneret.
SYN. *Charadrius philippinus,* Scopoli.
" *dubius,* Gmelin.
" *suronicus,* Beseke.
" *minor,* Meyer.
" *fluviatilis,* Beehst.
" *intermedius,* Menetries.
" *hiaticuloides,* Franklin.
" *zonatus,* Swainson.
" *hiaticula,* Pallas.

OYSTER CATCHER.

Hæmatopus ostralegus, Linn.

WHITE OYSTER CATCHER.

Himantopus candidus, Bonnat.
Charadrius himantopus, Linn.
" *atumnalis,* Hasselquist.
Himantopus vulgaris, Bechstein.
" *albicollis,* Vieillot.
" *atropterus,* Meyer.
" *melanopterus,* Temm.
" *asiaticus,* Lesson.

INTERMEDIATE OYSTER CATCHER.

Himantopus intermedius, Blyth.

RECURVED BILL.

Recurvirostra avocetta, Linn.

SNIPPETS.

TOTANUS GLOTTIS, Gould.
SYN. *Scolopax* " Linn.
" *canescens,* Gmelin.

Totanus chloropus, Meyer.
" *fistulans*, Bechstein.
" *glottoides*, Vigors.
Limosa grisea, Brisson.
" *totanus*, Pallas.
" *glottis*, "
Glottis natans, Koch.
" *vigorsii*, Gray.

TOTANUS STAGNATILIS, Bechstein.
SYN. *Scolopax totanus*, Linn.
Totanus Horsfieldi, Sykes.
" *Lathami* Gray.
" *tenuirostris*, Horsfield.

TOTANUS FUSCUS, Blyth.
SYN. *Scolapax fusca*, Linn.
" *nigra*, Gmelin.
" *curonica*, Beseke.
Limosa fusca, Brisson.
Tringa atra, Gmelin.
" *natans*, Bechs.
" *Maculatus*, "

TOTANUS CALIDRIS, Blyth.
SYN. *Scolopax* " Linn.
Tringa gambetta, Gmelin.
Totanus variegatus, Brunnich.
" *striatus*, Brisson.
" *naevius*, "

ACTITIS GLAREOLA, Blyth.
SYN. *Tringa* " Gmelin.
Totanus affinis, Horsfield.

ACTITIS OCHROPUS, Blyth.
SYN. *Tringa* " Linn.
Totanus leucurus, Gray.

ACTITIS HYPOLEUCOS, Blyth.
SYN. *Tringa hypoleucea*, Linn.

TEREKIA CINEREA, Gould.
SYN. *Scolopax* " Gmelin.
" *terek*, Latham.
" *sumatrana*, Raffles.
Limosa recurvirostris, Pallas.
Fedoa terekensis, Stevens.
Totanus javanicus, Horsfield.
Xenus cinereus, Kaup.

LIMOSA AEGOCEPHALA, Gould.
SYN. *Scolopax* " Linn.
" *limosa*, "

Scolopax belgica,	Gmelin.
" *melanura,*	Leisler.
Limosa leucophaea,	Jerdon.
" *melanuroides,*	Gould.

ဇင်ရော်။

CURLEWS.

NUMENIUS ARQUATA,	Linn.
" PHAEOPUS,	"
SYN. *Phaeopus vulgaris,*	Flemming.

မိန်းမလက်သဲငှက်။ (ကုလားကောက်။ *Aracan.*)

SAND PIPERS.

TRINGA CANUTUS,	Linn.
SYN. *Tringa cinerea,*	Brunnich.
" *islandica,*	Gmelin.
" *glareola,*	Pallas.
Naenia grisea,	Gmelin.
" *australis,*	"
TRINGA SUBARQUATA,	Gmelin.
SYN. *Tringa ferruginea,*	Brunnich.
" *islandica,*	Retzius.
" *fulcinella,*	Pallas.
" *chinensis,*	Gray.
Scolopax africana,	Gmelin.
" *pygmoea,*	Gmelin.
" *caffra,*	Forster.
Numenius pymoeus,	Latham.
Erolia varia,	Vieilot.
Falcinellus cuvieri,	Bonap.
TRINGA PLATYRHINCHA,	Gould.
SYN. *Tringa cloroides,*	Vieillot.
Limicola pygmæa,	Kaup.
TRINGA MINUTA,	Leisler.
SYN. *Tringa pusilla,*	Meyer.
" *cinclus,*	Pallas.
" *damacensis,*	Horsfield.
TRINGA TEMMINCKII,	Leisler.
SYN. *Tringa pusilla,*	Bechstein.
EURINORHYNCHUS PYGMAEUS,	Gray.
SYN. *Platalea pygmaea,*	Linn.
Eurinorhynchus griseus,	Nilsson.
" *orientalis,*	Blyth.

	PHILOMACHUS PUGNAX,	Gould.
SYN.	*Tringa* "	Linn.
	" *variegata,*	Brunnich.
	" *equestris,*	Latham.
	" *grenovicensis,*	"
	" *rufescens,*	Bechstein.
	" *littorea,*	Gmelin.
	Limosa hardwickii,	Hardwicke.
	Totanus indicus,	"

ဇင်ရော်။

TURNSTONE.

	STREPSILAS INTERPRES,	Gould.
SYN.	*Tringa* "	Linn.
	Strepsilas collaris,	Temm.

SNIPES.

	GALLINAGO STENURA,	Blyth.
SYN.	*Scolopax* "	Temm.
	" *galliago,*	Horsf. Raffles.
	" *heterura,*	Hodgson.
	" *biclavus,*	"
	GALLINAGO SCOLOPACINUS,	Bonap.
SYN.	*Scolopax gallinago,*	Linn.
	Gallinago uniclavus,	Hodgson.
	RHYNCHEA BENGALENSIS,	Hardwicke.
SYN.	*Scolopax,* "	Linn.
	" *capensis,*	Gmelin.
	Rhynchea orientalis,	Horsfield.
	" *varia,*	Temm.
	" *capensis,*	Gray.

မြေဝတ်။ (ဇင်ရော်။ *Aracan.*) ထိုးထီးနိုး ထိုးပနါအွား
ထိုင်ထီနိုင် ထိုင်ထးဆဲး

	GALLINAGO GALLINULA,	Blyth.
SYN.	*Scolopax* "	Linn.
	" *minima,*	Ray.

SPUR-WINGS.

	METOPIDIUS INDICUS,	Vieillot.
SYN.	*Parra indica,*	Latham.
	" *cuprea,*	Vahl.
	" *melanochloris,*	Vieillot.
	" *ænea,*	Cuvier.
	" *superciliosa,*	Horsfield.
	" *atrata,*	Tickell.

Gallinula viridis.

	HYDROPHASIANUS CHIRURGUS,	Gould.
SYN.	*Tringa* "	
	Parra sinensis,	Gmelin.
	" *luzoniensis.*	

CRANE.

A large slate-coloured crane is often seen stalking about the paddy fields, and near the sea-shore. It is sometimes called the adjutant without a pouch.

Grus antigone,	Edwards.
Ardea "	Linn.
Grus torquatus,	Vieillot.
" *orientalis ?*	Pallas.

ကြိုးကြာ။ ကိုး-ထိ၂ဒိ၂. ထိန်ယိးကွါ။
ထိန်ဒိန်။ ထိန်ကြွေဒေ ရှိကိုကွန်။ ဟိ။

EUROPEAN CRANE.

Grus cinerea,	Bechstein.
Ardea grus,	Linn.
Grus vulgaris,	Pallas.

IBIS, OR BLACK CURLEW.

Falcinellus igneus,	Gould.
Tantalus falcinellus,	Linn.
" *igneus,*	Gmelin.
" *Viridis,*	"
Ibis sacra	Temm.

KING CURLEW.

Geronticus papillosus,	Blyth.
Ibis papillosa,	Temm.

IBIS, OR WHITE CURLEW.

Threskiornis melanocephalus,	Jardine.
Tantalus "	Linn.
Ibis Macei	Temm.
" *leucon,*	"
" *bengala,*	Cuvier.
" *religiosa,*	Sykes.

ခရုစုတ်အဖြူ။

GANGETIC IBIS.

Tantalus leucocephalus,	Gmelin.
" *gangeticus,*	Shaw.
" *indicus,*	Cuvier.

SPOON IBIS.

Platalea leucorodia,	Linn.

OPEN-BEAK.

Anastomus occitans,	Blyth.
Ardea "	Boddaert.
" *ponticeriana,*	Gmelin.
" *coromandelica,*	"
" *typus,*	Temm.
" *albus,*	Vieillott.
" *cinereus*	"
Mycteria asiatica?	Latham.

ခရုစုတ်။

ADJUTANT.

Among the problems given Dr. Helfer to solve when he visited our shores, was, to ascertain if the breeding of adjutants takes place here, "as well as its manner." He replied on returning to Calcutta: "The *Ciconia argala,* or the common Calcutta adjutant, is never seen on that coast." Here he was mistaken. It is very common in Province Amherst; and it builds its nest, in the inaccessible summits of the mural limestone rocks, and occasionally near the tops of large wood-oil trees.

The under tail-coverts are delicate and floating, forming plumes of the most exquisite texture, which, in Maulmain command a high price. These plumes are known in England by the term marabou, a name taken from the African species.

A species, smaller than the common adjutant, without a pouch produces the handsomest plumes. This the Burmese call *dung-myie-kwet**.

Leptoptilos argala,	Blyth.
Ardea "	Linn.
" *dubia,*	Gmelin.
Ciconia mirabou,	Temm.
" *nudifrons,*	Jerdon.
Argala migratoria,	Hogdson.

တုံးစပ်။ ဒုံးစပ်။ ငှက်ကြီး။ ထိုးဒိုး. ထိုင်ဒိုင်

JAVANESE ADJUTANT.

Leptoptilos javanica,	Blyth.
Ciconia "	Horsfield.
" *capillata,*	Temminck
" *calva,*	Jerdon.
" *nudifrons,*	McClell.
" *cristata,*	"

*ဒုံးမြီးကွက်။

Argala immigratoria,	Hodgson.
Ardea dubia,	Raffles.

WHITE-HEADED CICONIA.

Ciconia leucocephala,	Blyth.
Ardea "	Gmelin.
Ciconia umbellata,	Wagler.

ဗျည်ခင်ရွှမ်။

WHITE CICONIA.

Ciconia alba,	Belon.
Ardea ciconia,	Linn.

AUSTRALIAN CICONIA.

Mycteria australis,	Shaw.
Cyconia leucoptera,	Wagler.

HERONS AND EGRETS.

The herons and egrets are very numerous in both numbers and species.

BROWN HERON.

Ardea sumatrana,	Raffles.
" *fusca,*	Blyth.
" *rectirostris,*	Gould.

COMMON BRITISH BROWN HERON.

Ardea cinerea,	Linn.
" *major,*	"
" *bruh ?*	Jacquemont.

RUFOUS HERON.

Ardea purpurea,	Linn.
" *caspica,*	Gmelin.
" *purpurata,*	"
" *rubiginosa ?*	"
" *botaurus,*	"
" *rufa,*	"
" *variegata,*	Scopoli.
" *monticola.*	

ရွှေ။

WHITE PADDY BIRD.

This is the most common bird of the tribe, and is the white heron of Linneus, but by modern writers is referred to the egrets.

Herodias	*alba*	Gould.
Ardea	"	Linn.
"	*egretta ?*	Temm.
"	*nivea ?*	Lesson.
"	*modesta,*	Gray.
"	*torra,*	Franklin.

ဖြိုင်ဖြူ၊ ထိုလဲအွေ၊ တလေကျိုတေ၊ ထိုဉ်လဲဝါ။ ဝါလာဒ်ထံ၊

MALAY EGRETS.

Herodias	*intermedia,*	Gould.
Ardea	"	Wagler.
"	*egrettoides,*	Temm.
"	*flavirostris,*	Bonnaterre.
"	*putea,*	B. Hamilton.
"	*nigrirostris,*	Gray.
"	*plumifera,*	Gould.

The two following egrets are characterised by Mr. Blyth as "associating much with cattle."

	HERODIAS GARZETTA,		Blyth.
SYN.	*Ardea*	"	Linn.
	"	*xanthodactyla,*	Gmelin.
	"	*nivea,*	"
	"	*orientalis,*	Gray.
	"	*melanopus,*	Wagler.
	"	*nigripes,*	Temm.
	Herodias	*immaculata ?*	Gould.
	HERODIAS BUBULCUS,		Blyth.
SYN.	*Ardea*	"	Savigny.
	"	*lucida,*	Raffinsgue.
	"	*æquinoctialis,*	Montague.
	"	*coromandelensis,*	Stevens.
	"	*bicolor,*	Vieillot.
	"	*ruficapilla,*	"
	"	*russata,*	Temm.
	"	*affinis,*	Horsfield.
	"	*coromandelica,*	Lichten.
	"	*veranii,*	Roux.
	"	*leucocephala,*	Cuvier.
	"	*caboga,*	Franklin.
	"	*ibis,*	Hasselquist.

DEMI-EGRET.

"Colour," says Mr. Blyth, "uniform dark slaty throughout; some specimens having a white line on the chin and throat. Adults have narrow lengthened plumes on the back and breast, similar to those of *Ardea cinerea*: the occipital plumes also are somewhat lengthened, as in herons generally; but I have seen no defined occipital crest, and doubt its ever possessing one. Beak mingled dusky, and dull yellowish, and the legs appear to have been olive-green."

Herodias concolor,	Blyth.
Demigretta "	"

Related to the above are,

BUTORIDES JAVANICA,	Blyth.
SYN. *Ardea* "	Horsfield.
ARDEOLA LEUCOPTERA,	Hardw.
SYN. *Ardea* "	Boddært.
" *grayi*,	Sykes.
" *malaccensis*,	Gmelin.

မြိုင်းအောက်။

NIGHT-HERON.

In the dark silent night the voyager is often startled by the dolorous scream of the night-heron along the shores, whose loud roar so much resembles the bellowing of a cow, that the Burmese call it the "cow-bird," which reminds us of the "bull-of-the-bog," one of the names of the bittern.

Nycticorax griseus,	Blyth.
Ardea nycticorax,	Linn.
" *grisea*,	"
Nycticorax europoeus,	Stevens.

ငှက်နွားဒေ လင်ဝက်။

TIGER-BITTERN.

Tigrisoma melanolopha,	Blyth.
Ardea "	Raffles.

YELLOW-NECKED BLACK HERON.

This is a bird that Mr. Blyth considers as related to the bitterns. Varying with age, it is blue, purplish, or black.

Ardetta plavicollis,	Jerdon.
Ardea "	Latham.
" *nigra*,	Vieillot.
" *picto*,	Raffles.

Affined to the above are:

ARDETTA CINNAMOMEA,	Hardw.
SYN. *Ardea* "	Gmelin.
ARDETTA SINENSIS,	Hardw.
SYN. *Ardea* "	Gmelin.
" *lepida*,	Horsfield.
" *nebulosa*,	"

SULTANA-COOTS.

Two species of *sultana* nearly related to *fulica*, the coots, are found in the country.

PORPHYRIO POLIOCEPHALUS,	Latham.
GALLICREX CRISTATUS,	Blyth.
SYN. *Gallinula cristata*,	Latham.
" *plumbea*,	Vieillot.
" *lugubris*,	Horsfield.
" *gularis*,	
Rallus Nufescens,	Jerdon.
Fulica cinerea,	Gmelin.

WATER HENS.

PORZANA PHOENICURA,	Horsfield.
SYN. *Rallus phoenicurus*,	Penn.
Gallinula javanica,	Horsfield.
" *erythrina*,	Eech.
Fulica chinensis,	Boddaert.

ကလူကွတ်။

PORZANA MARUETTA,	Blyth.
SYN. *Rallus porzana*,	Linn.
" *maruetta*,	Brisson.
PORZANA PYGMÆA,	Blyth.
SYN. *Crex* "	Naumann.
Gallinula Baillonii,	Viellot.
PORZANA FUSEA,	Blyth.
SYN. *Rallus* "	Linn.
Gallinula rubiginosa,	Temm.
GALLINULA CHLOROPUS,	Blyth.
SYN. *Fulica* "	Linn.
" *fusca*,	"
Gallinula parvifrons,	Blyth.

RAILS.

RALLUS STRIATUS,	Linn.
SYN. " *gularis*,	Horsf.

	RALLUS INDICUS,	Blyth.
SYN.	" *aquaticus.*	

ရေကြက်မ။ ထိ၂ကိရ၂. ထိဉ်ကူ၎ရဒကွး။

COOT.

	Fulica atra,	Linn.
	" *aterrima,*	"
	" *aethiops,*	Sparrmann.
	" *leucoryx.*	"
	" *pullata,*	Pallas.
	" *atrata,*	"

GULL.

Gulls are common on the sea shore, where they are called by the natives "sea-parrokeets."

	LARUS FUSCUS,	Linn.
SYN.	" *flaviceps,*	Meyer.
	" *argentatus,*	Montague.
	LARUS ICTHYÆTUS,	Pallas.
SYN.	" *kroikocepalus,*	Jameson.
	Icthyætus Pallasi,	Kaup.
	LARUS RIDIBUNDUS,	Linn.
SYN,	" *cinerarius,*	"
	" *erythropus,*	Gmelin.
	" *atricilla,*	Pallas.
	" *nœvia,*	"
	" *canescens,*	Bechstein.
	" *capistratus,*	Temm.
	Sterna obscura,	Latham.
	LARUS BRUNICEPHALUS,	Jerdon.
SYN.	" *ridibundus,*	Sundevall.

SCISSORS BILL.

At Tavoy the sheer-water, or scissors-bill, is frequently seen cleaving the water with its curious bill, the upper mandible of which is much shorter than the lower. It has never been noticed among the collections of birds sent to Calcutta, either from these Provinces or Aracan. A specimen that I examined differed in no important respect from the European species.

Rhynchops nigra.

ပင်လယ်ပေါ်ငှက်။ ထိ၂ဘုဒီ. ထိဉ်ပိဉ်လဲဉ်ဖီ။

MARSH TERNS.

	GELOCHELIDON ANGLICUS,	Wilson.

Syn. *Sterna anglica*,	Montague.
" *cranea*,	Wilson.
" *risoria*,	Brehm.
" *meridionalis*,	"
" *nilotica*,	Gmelin.
" *affinis*,	Horsfield.
HYDROCHELIDON INDICA,	Blyth.
Syn. *Viralva* "	Stevens.
Sterna hybrida,	Pallas.
" *leucopareia*,	Nutterer.
" *grisea*,	Horsfield.
" *cantiaca ?*	Raffles.
" *similis*,	Gray.

SHORE AND RIVER TERNS.

THALASSEUS CRISTATUS,	Gould.
Syn. *Sterna cristata*,	Stephens.
" *pelicanoides*,	King.
THALASSEUS BENGALENSIS,	Gould.
Syn. *Sterna* "	Lesson.
" *media ?*	Horsfield.
Thalasseus torressii,	Gould.
SEENA AURANTIA,	Hardw.
Syn. *Sterna seena*,	Sykes.
" *aurantia*,	Gray.
" *brevirostris*,	"
STERNA JAVANICA,	Horsfield.
Syn. " *melanogaster*,	Temm.
" *acuticauda*,	Gray.
STERNULA MINUTA,	Wilson.
Syn. *Sterna* "	Linn.
" *summatrana ?*	Raffles.
" *sinensis ?*	Gmelin.

OCEANIC TERNS.

ONYCHOPRION MELANAUCHEN,	Gould.
Syn. *Sterna* "	Temm.
" *minuta*,	Horsfield.
Onychoprion anasthætus,	Sonn.
Syn. *Sterna* "	Scopoli.
" *panayana*,	Latham.
" *infuscata*,	Lichten.
" *antarctica*,	Lesson.

TROPIC BIRD.

A single species of tropic-bird, or boatswain-bird, with its two long tail-feathers, is known to inhabit the Bay of Bengal; and it is rather remarkable that while it differs from the species found near the Mauritius on the west, *Ph. candicus;* and from the species found towards Australia on the east, *Ph. phœnicurus;* it is identical with the common tropic-bird in the Atlantic Ocean.

Phæton æthereus,	Linn.
" *percenicurus,*	Gmelin.

Related to the above is

Sula fiber,	Gould.
Pelicanus fiber,	Linn.
" *sula,*	"
Sula australis,	Stevens.
" *braziliensis,*	Spix.

PELICAN.

The pelican may be seen in flocks of fifty or a hundred on the flooded lands of Pegu, and are found in smaller numbers throughout the country. Mr. Blyth distinguishes two species, and writes of the female specimen of one:— "In full breeding dress, with interspersed narrow crispid breast plumes of a bright ferruginous hue, indicating the origin of the fable of the pelican feeding its young with blood from its own breast.

	PELICANUS JAVANICUS,	Horsfield.
SYN.	" *onocrotalus,*	Pallas.
	" *crispus?*	Bruch.
	PELICANUS PHILIPPENSIS,	Gmelin.
SYN.	" *roseus,*	"
	" *manillensis,*	"

CORMORANT.

The cormorant, that ominous bird so dreaded by the Druids, may be often seen fishing on the banks of fresh-water streams and ponds. Wordsworth, alluding to the sea-mew screaming around the arch Druid's brow, adds:

"And toward the mystic ring
Where augurs stood, the future questioning,
Slowly the cormorant aims her heavy flight,
Portending ruin to each baleful rite."

This bird is a noble fisher, and trained to that business in Holland and China. In Aracan it has the same name as the darter, but I have never heard that name applied to it in the Tenasserim Provinces.

There are two species.

	GRACULUS CINENSIS.	
SYN.	*Carbo laurogaster*,	Meyer.
	" *nudigula*,	Brandt.
	Pelicanus sinensis.	Shaw.
	Phalacrocorax fuscicollis,	Stevens.
	" *leucotis*,	Blyth.
	GRACULUS PYGMÆUS,	Hardw.
SYN.	*Pelicanus* "	Pallas.
	Carbo javanicus.	
	Carbo melanognathus,	Brandt.
	Phalacrocorax niger,	Vieillot.
	Halicus africanus,	Sundevall.

အောရော။ (တင်ကျီ။ *Aracan.*) ဒကျီးခဒဲ. ထိန်အိန်ရီ

SNAKE-BIRD.

On some of our inland streams the darter is common. This bird resembles the cormorant, but has a much longer neck which it lifts above the water when swimming, while its body is immersed, with a snake like motion.

Tlotus melanogaster,	Gmelin.
" *vaillantii*.	

တင်ကျီ။ ထိုလဲ. ထိန်လဲ

GOOSE.

M. Blyth says that the domestic geese of India are the mixed progeny of *Anas cygnoides*, Linn, and *Anas anser* Linn, which makes them rather ducks than geese; Linneus being judge. According to modern systems we have both ordinary geese and perching geese among our wild birds; besides ducks, but all are usually denominated ducks or teal.

ORDINARY GEESE.

Bernicla indica,	Gould.
Anas "	Gmelin.
Anser undulatus,	Brandt.

PERCHING GEESE, OR TEEL.

DENDROCYGNA MAJOR,	Jerdon.
DENDROCYGNA AWSUREE,	Blyth.

စစ်စလီ။ ထိုထုထံ. ထိန်ဒုန်ထံ။ ဘား။

WILD DUCKS.

Sarcidiornis melanotus,	Pennant.
Anser "	"

တောဝမ်းဝဲ။ ထိုထုမ်း. ကူရူဗိုဒ်။

SHIELDRAKES.

Casarca leucoptera,	Blyth.

TYPICAL DUCKS.

SPATULA CLYPEATA,	Blyth.
SYN. *Anas* "	Linn.
" *rubens,*	Gmelin.
" *mexicana,*	Latham.
" *platalea,*	Vieillot.
ANAS PŒCILORHYNCHA,	Pennant.

PINK-HEADED DUCK.

Anas caryophyllacea,	Latham.
" *erythrocephala,*	Bonnaterre.

PIN-TAILED DUCK.

Defila acuta,	Gould.
Anas "	Linn.
" *caudacuta,*	Ray.
" *langicauda,*	Brisson.
" *tsitzihoa,*	Vieillot.

CAPE DUCK.

Chaulelasmus streperus,	Blyth.
Anas strepera,	Linn.
" *platyrhynchus,*	Ray.
" *kekuscha,*	Gmelin.
Chauliodus capensis,	Swainson.

NEPAL DUCK.

Mareca penelope,	Gould.
Anas "	Linn.
" *fistulans,*	Brisson.

CRECCA DUCK.

Querquerdula crecca,	Blyth.
Anas "	Linn.

CIRCIA DUCK.

Querquerdula circia,	Blyth.
Anas "	Linn.
" *querquerdula,*	"

SEA DUCK.

Fuligula ngroca,	Blyth.
Anas, "	Guldenstadt.
" *perigrina*,	Gmelin.
" *africana*,	"
" *gmelini*,	Latham.
" *glaucion*,	Pallas.

GREBE.

Podiceps philippensis,	Gmelin.
Colymbus, minor,	"
" *hebridicus*,	"
" *fluviatilis*,	"

DIVER.

Major Berdmore sent up a specimen of a diver to Calcutta, of which Mr. Blyth wrote: "Only one specimen has heretofore been known to exist, and that is in the British museum. This bird has the appearance of a short legged *gallinula*, or heron hen."

Podoa personata, Gray.

Ichthyology.

"Almost every reptile and fish of the Tenasserim coast must necessarily be new," remarked a gentleman of no ordinary scientific attainments. And it is a very common error to suppose that, because the productions of a country are unknown, they are therefore new to science. No one appears to have examined our fish, but a collection of twenty-seven species that I sent Mr. Blyth, contained only one new species, though the principal part of them were fresh-water fish; and from the little attention I have been able to bestow upon them, I judge that by far the larger proportion of our fishes are common to other coasts bordering the Bay of Bengal. Still there undoubtedly remain many species to be described, especially among the cat-fish and carp families in the interior. Prof. Agassiz, in his work on Lake Superior, remarks on the cyprionides, or carp tribe: "They do not seem to occur in the northernmost fresh water streams, *nor any where in the tropics*, except in very high altitudes, where recently a few have been found in the Andes." Coming, as this does, from the best read naturalist, and the ablest of ichthyologists, it shows how little is known, even in the scientific world, of the fish of Burmah, for the carp family is one of the most numerous in our waters, and forty species will be found noted in the following pages.

LARGE SCALED-FISH.

The *macroleptes*, or large scaled-fish of the order with spinous rays in the dorsal fin, embrace on this coast, perch, cockup, band-fish, umber, Indian whiting, mullet, mango-fish, king-fish, climbing perch, and snake-heads.

LARGE PERCH.

A perch which sometimes grows two feet long is often seen in Maulmain bazar, and is esteemed a valuable fish by Europeans. The formula of the fin rays is,

D. 7,1-11 : P. 15 : V. 1-5 : A. 3-9 : C. 17.*

Perca.

ငါးကကဋ္ဌာစ်။ ယ၊ကၫ၁တ္တူ၊ ညှင်ကးဘဲ။

SMALL PERCH.

A small fish of the perch tribe is common in the interior of the Provinces.

D. 7,1-14 : P. 10 : V. 1-5 : A. 3-15 : C. 18.

ငါးစင်စတ်။ (ငါပြေသက်။ *Tavoy.*)

ယ၊ဝံ၊. ညှင်ဗျာဒီး။

COCKUP.

A fish which Europeans in India call cockup, is very common on the coast, and often ascends the large rivers a long distance. Crawfurd found it a hundred and twenty miles from the sea, in the Irrawaddy, and characterizes it as "one of the best Indian fishes." It resembles the basse, or wrasse. Cantor speaking of the same fish in the Straits, says: "Those inhabiting brackish water are of a muddy flavour; and blackish or of much darker colours than those living in the sea." It is one of the fish that produces isinglass, but not in large quantities.

LATES HEPTADACTYLUS,	(Lacèpéde.)
Perca maxima,	Sonnerat (MS. ?) Cuv. and Val.
Holocentre heptadactyle,	Lacèpéde.
Russell, CXXXI. Pandoomenoo.	
Coius vacti,	Buchanan Ham.
Lates nobilis,	Cuv. and Val.

ငါးကသပေါင်း။ ယ၊ကၫထဇီ. ညှင်ဗူမဲ၊ ညှင်ဒိုင်ဗူမဲ၊

LARGE COCKUP.

I met with a fish resembling the cockup at Monmagon, but larger, being more than six feet long, and of a different

* That is D., the dorsal has in the first fin 7 rays all spinous; in the second fin 1 spinous, and 11 that are soft. P., the pectoral fin, has 15 soft rays. V., the ventral fin has 1 spinous ray, and 5 that are soft. A., the anal fin has 3 spinous and 8 soft rays. C., the caudal fin has 17 rays.

species, for there were ten spinous rays in the first dorsal, while *L. Heptadactylus* has only seven. It has also a distinct vernacular name.

ငါးကသမြင်။

STONE FISH.

I noted a fish at Monmagon of the holocentrus tribe, with a red head, ends of the fins and tail yellow, which the English call stone fish, being hard to eat; and the Burmese red fish.

ငါးနီး။ ညှက်ဂီးမဲ။

CHAUDA.

Among our salt water fish is a small thin species with the lower jaw protruding, body oval, dorsal fins hardly united at their base, and the caudal large and forked. It belongs to genus *Ambassis* of Cuvier, and *Chauda* of Buchanan Hamilton.

Chauda nalula,	Buch. Ham.
Ambasis "	Cuvier.

ငါးဗျား။

SILAGO.

A salt-water fish less than a foot in length, with the first ray of the two dorsal fins very long, is seen occasionally in bazar. It belongs to Cuvier's genus silago, and Mr. Blyth, to whom I sent a specimen, said it was

Silago acuta.	Cuv.
" *malabarica*	"
Sciäena "	Bloch. Schneider.

ငါးပလွေ။

BAND-FISH.

A species of chetodon, resembling the *Chetodon bordé* of the French dictionary, is not uncommon at Monmagon.

Chætodon.

ငါးဖခဲ။ ယၢမံးရှါ. ညှက်ဒုက်ဗိုက်လဲန်။

ELEPHANT-EAR FISH.

A fish of the chætodon tribe, which the natives call "elephant's ear," from its shape, is found in great abundance on the Tavoy coast. It resembles

Ponacentrus marginatus.

ငါးဆင်နှား ယၢကဆူနှါ. ညှက်ကဆိန်၊

CRENIDENS.

A small fish with a row of sharp teeth in front, with globular ones behind, a spine on the gill covers, and of an oval form, is found at Monmagon. The dorsal fin has eleven spinous and eleven plexible rays.

Crenidens,	Cuvier.

ငါးသင်ကုတ်ဖြူး။

GERRES.

A fish not more than four inches long, short and broad; greenish above the lateral line and spotted with black, is not rare on the sea coast.

Gerres filamentosum,	Cuvier.
Catochænum, "	"

ငါးဆံလှ။

INDIAN WHITING.

There are two or three species of fish common in Calcutta that are called whiting, from their resemblance, both in form and flavour, to the European fish of that name. One species is frequently seen in the Maulmain bazars, and besides being a good fish for the table, its air-bladder makes excellent isinglass.

Johnius coitor,	Cantor.
Corvina "	Cuvier.
Bola "	Buch. Ham.

ငါးပုတ်သင်။

TWO-SPINED JOHNIUS.

This is another species of the same genus as the above, and like that, valued both as an article of food, and for the isinglass it produces.

Johnius diacanthus,	Lacepede.
Lutjanus "	"
Johnius cataleus,	Cuvier.
Corvina catalea,	"
" *nalla katchelee,*	Richardson.

THE PYTHONEES.

This is the Burmese name of another fish produing isinglass, and which is also denominated whiting. Mr. O'Riley sent it up to Calcutta from Amherst. Dr. M'Clelland wrote: "It belongs to the genus corvinus, closely allied to

C. niger, but of monstrous dimensions compared with the European species."

Johnius chaptis,	Buch. Ham.
Corvina "	Cuvier.
Bola "	Buch. Ham.

နုတ်ကတော၌။

OTOLITHUS.

This is another of the whitings, but distinguished from the preceding species by large canine teeth. It is a handsome fish. The back has golden and scarlet reflections. The dorsal fin is orange and red, tipped with black; the pectorals are red and the caudal fin orange.

Otolithus pama,	Buch. Ham.
Bola "	" "
Sciæna "	Cuvier.

ငါးပြာ။

TWO-EARED OTOLITHUS.

This species derives its name from two ear-like appendages formed by lobes of the skin behind the gills. It differs from the preceding species in being more elongated, in having from ten to fifteen fewer rays in the dorsal fin; and in being dotted all over with small brown spots. Cantor says it produces a large quantity of isinglass which the Chinese deem of the best quality.

Otolithus biauritus,	Cantor.
Johnius coitor.	
Corvinus "	

ငါးပူတိသင်။ ငါးပြာ။

CORVINA.

" *Corvina* differs from *Johnius* in the comparatively greater size of the second anal spine." The fish however are alike valuable for food, and the species I met at Monmagon, at least, produces isinglass. It is a large fish, two feet long, greenish on the back, with the fins dotted with brown.

Corvina soldado,	Lacepede.
Holocentre "	"
Corvina miles	Cuvier.
Sciæna argentea,	Kuhl.

ကလေဝင်ပေါင်။

UMBER.

A species of umber, a fish resembling a perch, sometimes called sea-perch, was among the described species that I sent Mr. Blyth.

Sciæna.

ပင်လယ်ငါးပြေမ။ ကၫခဒိၫပၫ့လဲၫ. ညှင်ဝှင်ဗိုင်လဲဉ်

LARGE MULLET.

A species of mullet is very common, and is often seen on the tables of Europeans, by whom it is highly esteemed. Mr. Blyth, to whom I sent a specimen for the determination of the species, wrote that it was abundant in Calcutta, but "is of a species I could never determine from descriptions."

Mugil.

ငါးကဘလူ။

LARGE-EYED MULLET.

We have another mullet, equally valuable for the table with the last, and equally common in Calcutta, but distinguished among other things by its small head, smaller scales, and goggle eyes which appear to be starting out of its head.

Mugil cepnalotus, Vallenciennes.

ငါးစင်း။ ယကၫကျိုး. ညှင်ဖျိုးခဲဝ်။

SMALL MULLET.

A small mullet is often found in great numbers in the river near Maulmain, which many of the Burmese regard as the young of the preceding, but it is a distinct species, of which Mr. Blyth wrote that he had never seen it before, but had "made it out to be"

Mugil subviridis, Vallenciennes.

ငါးလုံး။

MANGO FISH.

This is a splendid fish and a favorite with many. It is nearly related to the mullets, and remarkable for the long filaments to the pectoral fins.

Polynemus paradiscus.

" *Risua,* Buch.

ငါးပုံနှား။ ယထီၫခၫဆိၫ. ညှင်ထီခင်ဆူင်။

KING-FISH.

A few years ago the attention of the Commissioners of the Tenasserim Provinces and Aracan was drawn to the

fish that produce isinglass; and the result was, the discovery on our shores of Indian whiting and *Polynemus sele*, or *Indicus*, a fish that is found from Calcutta to Otaheite. The polynemus produces isinglass of the best quality, and Mr. O'Riley estimated that two thousand pounds might be obtained annually off Amherst alone. The sounds are a constant article of traffic among the Chinese.

Polynemus indicus,		Shaw.
" *sele,*		Buchan.
" *uronemus,*		Cuvier.
" *ploteus,*		McClell.
" *plebius,*		"
" *lineatus,*		"
" *gelatinosus,*		"
ကကူရိုး		
ka-tha	*(the young)*	O'Riley.
lukwah	*(Aracan)*	Bogle.
ကွဲယင်း	*(Tavoy.)*	
	Emoi (Otaheite.)	

FOUR-FILAMENT POLYNEMUS.

A species of *polynemus*, with four filaments to the pectoral fins, is found at Monmagon. It is one of the Tavoy dried fish and is highly esteemed by the natives. Cantor says that in the Straits of Malacca, "it is highly valued as an article of food, its flavour being compared with that of salmon."

Polynemus tetradactylus,	Shaw.
" *teria*	Buch.
" *salliah,*	Cantor.
" *quadrifilis,*	"

ငါးတလော

CLIMBING PERCH.

The climbing perch is a small fish, abounding in our waters, which has the power of climbing up out of the water on the roots of trees, and which will make its way on land, the Karens say, a quarter of a mile. It corresponds precisely to Gmelin's description of *Perca scandens*, in his edition of Linnæus, excepting in some of the fin-rays, in which it agrees better with the Bengal than with the Malay variety.

Perca scandens,	Linn.
Anthias testudineus,	Bloch.
Lutjan tortue,	Lacepede.
" *grimpeur,*	"

Amphiprion testudineus,	Bloch-Schniz.
" *scansor,*	
Caphalopholis "	"
Sparus testudineus,	Shaw.
Coius cobojius,	Buch. Ham.
Anabas scandens,	Cuvier.
" *testudineus,*	"
" *spinosus,*	Gray.

ငါးပြေမ။ ညှင်ဝှင်ဘီ ကးကဒီး
ယၢဒိၣ်ခိၢ. ကၣကဒိၣ.

AMPHIBIOUS SNAKE-HEAD.

Two or three species of ophiocephalus are very common. They are fresh-water fish, appropriately named, for the head is very much like a snake's head, and they are remarkable for the power of making their way from one pool to another on land. One species it is said, usually lives in hollow logs and holes, never in streams, and often a long time in the jungle without water. It appears to be either the same species, or a nearly related one to the *burachang* of Boutan, which the natives believe falls from heaven, from the circumstance of its being found after rain far from the water. Some of the Karens regard these with a superstitious awe, and abstain from eating them. They have a legend that they were formerly men, changed into fish for their sins; and the Pwo Karens at Tavoy say: "If people eat them, they will be transformed to lions." The fame of this fish had reached Greece more than two thousand years ago, for it is mentioned as a remarkable Indian fish by Theophrastus.

Ophiocephalus amphibeus ?

ငါးရန့်ခေါင်းတို။ ငါးပတက်။ ယၢလံၣ်ဝၣ်ဒိၤ. ညှင်လံၣ်

SPOTTED SNAKE-HEAD.

A species of ophiocephalus common at Maulmain, is remarkable for three black spots on the body just below the lateral line, at equal distances between the termination of the pectoral fins and the base of the caudal; and a bright red circle on the base of the upper lobe of the caudal fin, occupying nearly the whole breadth, with a deep black centre. Two small black dots are seen on the same lobe a little above the circle, and the dorsal and anal fins are spotted with white at the base, while these with the caudal are nearly black on the margin. In some specimens a reddish

stripe runs from the eye just above the lateral line to the red spot on the tail. The back is dark, and the belly of a light or whitish colour. A full grown one is said to be a yard long. The fine-rays are,

D. 50 : P. 16 : V. 5 : A. 36 : C. 12. *(long rays.)*

Ophiocephalus.

ငါးရန့်ဖိုင်း။ဖိုင်း။ ယၢဖိၤ့. ညှင်ဆဲးကံ့ခ်ၢ်၊ညှင်ဝစိၤ။

BANDED SNAKE-HEAD.

A species of ophiocephalus with a singularly variegated marking is occasionally brought to the bazars from Tavoy to Toungoo. The upper parts are dark olive green, and above the lateral line the body is crossed with from fifteen to eighteen dark bands. The lower parts are tinged with rose on the sides, and banded with dark lines so as to meet the upper bands on the lateral line, and form an obtuse angle. It rarely grows a foot long.

I sent Mr. Blyth a specimen of either this species or the preceding, and he wrote: "This ophiocephalus is, I believe, not named, but I have before had it from Goalpara." The fin rays are,

D. 33 : P. 15 : V. 5 : A. 25 : C 11.

ငါးရန့်။ ယၢလူ. ညှင်ကဖိ။ ညှင်လူၢ်။

SMALL SNAKE-HEAD.

A smaller species of ophiocephalus, the natives call

ငါးရန့်ပနော်။ ကၢပနီၢ. ညှင်မ့ၤတီၤ။ ညှင်ဝလူတူဉ်။

At Tavoy I have noticed a fish resembling a species of ophiocephalus, but of which I have no notes.

ငါးတယောဝ့။ ယၢဝ့ၢကူၢ. ညှင်ခွဉ်ကူး။

STRIATED SNAKE-HEAD.

Dr. Cantor describes *O. striatus* from the Tenasserim Provinces, but it does not appear to be identical with any of the species mentioned above, yet it may prove to be the same as the banded snake-head.

Ophiocephalus striatus,		Cuvier.
"	*wrahl,*	Buch. Ham.
"	*chena,*	" "

SMALL-SCALED FISH.

The *microleptes*, or small scaled fish, including the other tribes with spinous rays in the dorsal fins, do not appear to be very numerous; but they are represented in our waters by Indian mackerel or tunny, ophidians, long-snouts, dories, pomphrets, ribbon-fish, flat-heads, gobies, amblyopus-suckers, and periophthalmi.

TUNNY.

A fish of the mackerel tribe, often called Indian mackerel or Indian tunny, is common on the coast, and large quantities are dried for sale at Tavoy.

Cybium lineolatum,	Cuvier.

ကွံသျင်။

MADAGASCAR MACKEREL.

A fish that has been called Madagascar mackerel is found frequently on the Tavoy coast. I have measured them two feet and a half long; and even more, while the largest Dr. Cantor found at Penang were only two feet long.

Chorincmus lysan,	Cuvier.
Scomber "	"
" *madagascariensis,*	Shaw.
" *lysan,*	Cuvier.
Lichia "	Ruppell.
Scomberoide commersonien,	Lacep.
Chorinemus commersonianus,	Bennett.

ငါးပျတ်။

OPHIDIAN.

This fish is often described as resembling a small eel, but it has strong spines on the back, and before the anal fin.

Rhynchobdella ocillata.

ငါးမြွေထိုး။ ယၢဒိၢ့. ညဉ်အိ။

BANDED OPHIDIAN.

Of another fish resembling the above in form, but of more brilliant colours, Mr. Blyth wrote: "The mastacembalus with transverse stripes is a new species." A green and yellow ground on the back and sides is crossed by about twenty five blue bands. There are 29 spines before

the dorsal, and three before the anal, and there are three on the preoperculum. It abounds from Tavoy to Toungoo.

Matecembalus.

ငါးမြွေထိုး။ (ငါးရင်ဘူ။ *Tavoy.*) ယၢဒိၢ့. ညှဉ်အိ။

SITANG OPHIDIAN.

In the Sitang at Toungoo there is an ophidian with very peculiar markings. It has four longitudinal black lines, the upper one with alternate risings and depressions on the upper side, like the outline of a range of mountains. Behind the anal spines a series of circles are marked on the tail that are joined together, so as to produce transverse zigzag lines. Mr. Blyth writes to Major Berdmore: "I have a new spines from Maulmain which I call *M. zebrinus.*" Is this the same species? It has forty spines on the back, three on the operculum and two behind the vent.

LARGE SNOUT.

A fish of the same tribe as the preceding species is not rare; it is nearly related to M'Clelland's *Macrognathus undulatus* from Chusan. Like that it has 37 spines on the back in front of the dorsal, and three before the anal. The pectoral fin is also round, and contains about 20 rays. It differs however in having a truncated caudal with about 20 rays, instead of a lanceolate one, and in the figuring on its sides.

Macrognathus.

ငါးရင်။ ညှဉ်ဂုၢ်။ ညှဉ်ဝ့ၢ်။

TOUNGOO LARGE SNOUT.

An ophidian about two feet long, with the upper jaw projecting into a long snout over the lower, is common at Toungoo. The body is covered with white or straw coloured spots; there are 35 spines before the dorsal, 2 before the anal; and the dorsal, caudal, and anal fins are united.

Macrognathus.

ငါးရင်။ ညှဉ်ဂုၢ်။ တၢ်ဂူၢ။

SMALL DOREE.

A small fish of the doree tribe, common in our waters, Mr. Blyth said was

Equula ruconius.

ပင်လယ်ငါးစင်စပ်။ ပင်လယ်ငါးပြေသက်။

ပ့လဲၢယၢဖျၢဒံၣ.-ပ့လဲၢယၢဝံၢ. ဗိဉ်လဲဉ်ညှဉ်ဖျၢ်ဒံး

POMPHRET.

This fish is very abundant on the Tavoy coast, both the black and the white, and in a smooth sea, may be seen in the water in the great numbers, but they are very shy of the hook. They are considered excellent fish for the table.

	Stromateus niger,	Black Pomphret.
	" *sinensis,*	White "
SYN.	" *albus,*	" "
	" *atons,*	" "
	" *atoo-koia,*	" "
	Stromateus argenteus,	" "
SYN.	" *candidus,*	" "
	" *securifer,*	" "

ငါးမူ။ ငါးပါမောင်း။

RIBBON FISH.

A long narrow fish with a mouth full of teeth like a pike, and appropriately named the ribbon fish, is very common on the coast, and dried at Tavoy in large quantities. It is occasionally three feet long.

Trichiurus haumela,	Cuvier.
Clupea "	Linn.
Trichiurus lepturus,	Buch. Ham.

ငါးတခွန်ခါ။ ယၢဘဲၤဘီၤ့. ညဉ်ဘဲဘူ။

FLAT HEAD.

A spotted fish with a flat head, large vential fins, and about a foot and a half long, is caught on the coast occasionally.

Platycephalus insidiator,	Forskal.
Cottus "	Linn.
" *spatula,*	Bloch.
" *madagascariensis,*	Shaw.
Cotte madecasse,	Lacepede.
Callionymus indicus,	Linn.
Batrachus "	Bloch.
Calliomorus "	Lacepede.
" *chacca,*	Buch. Ham.
Platycephalus "	" "
" *spatula,*	Bloch. Schneid.

GOBY.

A small fish with the "head and back greenish brown, sides pale reddish yellow, back with five large distant brown-

ish spots; five similar on the sides, the latter disposed beneath the intervals of the former,"* belonging to the tribe suckers, is not uncommon.

Gobius kokius, Cuvier.

ကသဘိုး။ ယၢဗူၢဘိၤ့. ကၢအံၢပၢ့.

ညၢ်ဖြိၢ်။ ညၢ်ခုၢ်ဘိ။

ACUTE-TAILED GOBY.

A fish nearly related to the gobies, with a lanceolate tail, "sides greenish or bright gamboge, mottled with blackish"* is not of rare occurrence.

Apocryptes lanceolatus, Bloch.
" *changra,* Cuvier.
Gobius " Buch. Ham.
Scartelaos calliurus Swainson.
Eleotris lanceolata, Bloch.

ငါးပြန်။ ညၢ်လိၤ။

AMBLYOPUS-SUCKER.

This is an ugly looking fish, with the form of a small eel, having the ventral fin united into a concave disk like a sucker. The lower parts are red, and the upper lead colour.

Amblyopus hermannianus, Cuvier.
Psilosomus, " Swain.
Tænioide hermannian, Lacepede.
Capola hermanniana, Shaw.
" *cæcula,* Bloch.
Gobiode rubicundus, Buch. Ham.

ငါးပြန်နီး။ ငါးနီးကလေး။

PERIOPHTHALMUS.

At least two different species of this genus may be seen hopping about, in and out of the water, on every mud-bank within the reach of tide- water. Europeans often call them frog-fish.

Periophthalmus.

ငါးစင်။ (ပရစ်ပွီ။ *Tavoy.*)

ကၢကျီၤ့. ကးကျီ။ ညၢ်ဖျိးမဲၢ်။ ညၢ်ခွံၢ်။

*Cantor.

CARP FAMILY.

The carp tripe has more species in Burmah than any other family with which I am acquainted. It embraces representatives of carps, cirrins, labeo, barbels, breams, sustomus, perilamps, opsarions, bacailas, gudgeons, white-fish and loaches.

CARP.

Buchannan says of the catla that it "differs from the common carp of Europe only in wanting cirri." The carp of our waters has precisely the same number of fin rays as the catla, and and four cirri also, like the European carp; but M'Clelland adds: "It also differs from that species in the want of spinous rays in the dorsal and anal, as well as in general form. It approaches however, much nearer the Prussian carp, *C. gibelio*, the general figure, character of the fins, and number of their rays, being the same in both, but they differ in the size of their scales and proportion of the head."

Our species, although it bears a strong resemblance to the European carp, does not correspond exactly to the description of any European, or Indian species to which I can refer. It belongs to the genus cirrinus as defined by M'Clelland, which he says is "represented in America by the catastomi, and in Europe by *Cyprinus proprius*." The peculiar fleshy lips of this and the two or three species following, bear a very strong resemblance to the lips of the catastomi of the Ohio river. Unlike the catla the head is short, forming about one fourth of the whole length from the snout to the base of the caudal fin, and its depth about two thirds of its length.

The back which is raised like the common carp, is of deep lead colour, gradually growing lighter towards the belly, which is white; but the centre of each scale all over the body is tinged with red, of greater or less intensity which distinguishes it at a glance from the allied species. There are forty two scales on the lateral line, and fourteen from the ventral fin to the first ray of the dorsal.

D. 18: P. 18: V. 9 – A. 8: C. 19.

Cyprimus, Buch.
Cirrinus, M'Clell.

ငါးအွံ့တုံ။ ယၢကျၢ. ညှဉ်ချိ။ ညှဉ်ကျူး။

CALABASU CARP.

This is a dark coloured fish with deep blue reflections, and thick pendulous lips, like the Amerian catastomus. It is a common fish in Bengal, and was placed by Cuvier, incorrectly however, among the barbels; by Buchannan among the carps, and by M'Clelland in his genus cirrinus.

Cirrinus calabasu,	M'Clell.
Cyprinus, "	Buch.
Rohita, "	Blyth.

ငါးနက်ပြာ။ ယၢကၢပူၤ. ညဉ်ဂူ။

NANDINA CARP.

Another of Buchannan's carps called nandina in Bengal, is sold in the bazars of Maulmain under the same native names as the preceding, although the dorsal fin is much longer. "The colour of the upper part of the body is dark green, with coppery reflections: below, it is white; the fins are dark and the eyes red." M'Clelland found it in the Bramaputra, but was not aware of its existence on this coast.

Cyprinus nandina,	Buch.
Cirrinus "	M'Clell.

ROHITA CARP.

This species is rare in the Tenasserim Provinces, but large quantities are imported, dried and smoked, from Burmah proper. It is one of the exports from Toungoo. Buchannan says: "It is a most valuable fish."

Cyprinus Rohita,	Buch.
Cirrinus "	M'Clell.

ငါးသိုင်း၊ ညဉ်ကဝ့။ ညဉ်ဗဲ

BLACK-LINED CARP.

A species of *cirrhinus*, or carp, is seen to differ at a glance from the preceding species, by being marked with nine or ten longitudinal dotted black lines, from the head to the tail. It has about 30 scales on the lateral line, and 10 across the body. It never exceeds a foot in length.

D. 23: P. 18 or 19: V. 9: A. 9: C. 22.

Cirrhinus.

ညဉ်ခ့ခွါ

LABEO.

A small scaled fish of the carp tribe, with reddish iridescent scales, and no cirri, which grows a foot and a half long, is occasionally seen in the Maulmain bazar. It has fifty eight scales on the lateral line, and nineteen or twenty in a cross line from the ventral to the base of the dorsal fin. The fin formula is,

D. 16: P. 13: V. 9: A. 5: C. 20.

Cyprinus, Buch.

Labeo, M'Clell.

ငါးဖြစ်ချင်း ညှင်ခွါ။

HOG-FISH.

A species of *Labeo* with the upper lip projecting much beyond the lower, the Karens call the hog fish. It has 28 scales on the lateral line, and 8 or 9 between the ventral and dorsal *Labeo*.

D. 13: P. 16: V. 9: A. 6: C. 18.

ညှင်ကား ထိး။

MORTON BARBEL.

This is one of the most beautiful fish in Burmah, and when removed from its own element, its burnished scales of green and yellow glisten and play in the sun-light, like a panoply of brilliants.

Length of the head to that of the body as one to four, twenty three scales along the lateral line, and six in an oblique line from the base of the ventrals to the base of the spinous ray before the dorsal. The fin rays are,

D. 10: P. 12: V. 8: A. 7: C. 20.

It appears to be a new species, for it is not described in M'Clelland's monograph of the Indian cyprinidæ, but approaches nearest *B. hexagonolepus*, from which it differs materially in the scales and fin rays, and in the general form and tints, as represented in M'Clelland's coloured figure of that species. Though common in the southern Provinces, I have never met with it at Maulmain.

The species has been dedicated to Dr. Morton, long Civil Surgeon to the Tenasserim Provinces, and subsequently a member of the Commission in Pegu, a gentleman no less distinguished for his knowledge of the natural productions

of this coast, than for his urbanity, skill, and benevolence in his profession ; and who is well acquainted with the haunts of this fish at the Sacred Lakes in the vicinity of Tavoy.

These lakes, or reservoirs, are two small currentless basins in Pagaya river, which sleep at the foot of pagoda-crowned precipices from one to two hundred feet high. The fish are held sacred by the Budhists to those antique pagod reliques, and come in shoals to the handfuls of rice thrown them by the passing traveller, as fearless of man, as of the barking deer that drinks of their waters.

Barbus Mortonius, F. M.

ငါးရတ်နီး။ ယၢဖျါ. ညဉ်ဖျာ်။

LONG-BEARDED BARBEL.

M'Clelland describes a barbel with " peculiar appendages to the lower jaw," and we have a similar fish, but a distinct species in Burmah. It has a pointed snout with the upper lip projecting, and in the dorsal fin there is one strong long spine, preceded by two shorter ones, and were the third dorsal ray toothed, which it is not, it might be referred to the genus *Capoeta.* There are 19 scales on the lateral line, and 8 from the ventral to the dorsal. It reaches two feet long, and resembles in some points *C. macrolepidota,* but differs radically in other.

D. 3/10. P. 17. A. 9. V. 6. C. 20.

Barbus.

ငါးရတ်ဝက်။ ယၢဓိၢ. ညဉ်ဓိ။

LARGE-SCALED CAPOETA.

This genus which is related to the barbels has the third spinal ray in the dorsal fin serrated. Dr. Cantor describes a species with large scales from Java and Tenasserim. There are 27 or 28 scales on the lateral line.

D. 3/8. P. 16. V. 2/8. A. 2/5. C. $19\frac{5}{5}$.

Capoeta macrolepidota, Khul.

SMALL-SCALED CAPOETA.

I met with a species of barbel at Tavoy with the third bony ray of the dorsal, toothed, like the preceding species, and the fin formula nearly identical, but the scales are small, with 40 on the lateral line.

Capoeta. ညဉ်ကးဝဲ

TAVOY MOUNTAIN BARBEL.

This fish does not appear to have been described, and might be brought into the genus cyprinus, or carp, as described by some writers, but according to M'Clelland's arrangement it is a species of mountain barbel. It has two small cirri on the upper jaw, the dorsal fin is long with sixteen rays, and the scales are small; thirty-three on the lateral line.

Orcinus.

ယၢအူၢယီ. ညၢ်အူညီ ကးထိး

BREAM.

M'Clelland defines *Abramis:* "Body short and elevated, a short dorsal is placed opposite to the ventrals, colours plain, anal long." He adds that only one species is known in India. A second species answering these conditions is found in Pegu and the Tenasserim Provinces. There are about seventy scales on the lateral line and twenty-five between the ventrals and dorsal. The Karens call it "the peepul leaf fish."

D. 1/9: P. 15: V. 10: A. 20: C. 20 $^5/_2$

ငါးဖန်းမ။ ယၢချုသၢ. ညၢ်ချာ်တၢ်။

LARGE GUDGEON.

A species of gudgeon which grows from one to two feet long, is often seen in the waters of Amherst Province. It differs from all the species described by M'Clelland, but appears to be the Tenasserim representative of the Bengal mrigala,* or mirga. The head, eyes, and mouth, with the upper jaw projecting over the under, two minute cirri on the upper jaw, and head and back green, all correspond with the Bengal fish; but there is a material difference in other respects. Our fish has thirty eight scales on the lateral line and eleven in an oblique line from the base of the ventral to the dorsal. The fin rays are,

D. 14, or 15: P. 16, or 17: V. 10: A. 7: C. 20.

Gobio.

ငါးချင်း။ ယၢကျိုၤ. ညၢ်ကျိ။ ညၢ်စိဝါ။

RED-EYED GUDGEON.

A species of the same size as the preceding with red eyes, the back lead colour, with the scales on the side red in

* *Cyprinus mrigala,* Buch.

the centre, is found occasionally in the Salwen. It appears to correspond nearest to Buchannan's *Cyprinus pangusia*, but differs in some respects, and the back is much more arched than that species in M'Clelland's figure. It is destitute of cirri, the lips are fleshy, and the intestines very long. There are forty-one scales on the lateral line, and twelve on an oblique line from the ventrals to the base of the dorsal. The first rays of the dorsal and anal fins in both these species are bony. In classing them with the gudgeons, I have treated them as flexible, but should another observer consider them spinous, he will necessarily remove them to another genus. The fin rays of the two species do not differ from each other, more than individuals of each appear to differ among themselves; so that the fin rays will not serve to mark any specific difference.

D. 15. P. 16 : V. 10 : A. 7 : C. 19.

Gobio,	M'Clell.
Cyprinus,	Buch.

ငါးချင်းမျက်စိနီး။ ယာဝီးမံ. ညှင်ဂီးခဲပ်း

GONORHYNCHUS.

A fish resembling a gudgeon, but with the mouth under the head, and belonging apparently to M'Clelland's genus *Gonorhynchus*, is found in the Tenasserim.

Gonorhynchus.

TOUNGOO CARP.

This fish has the form of an English carp, but is without barbules. It differs from *Systomus* in having no spinal ray in the dorsal fin. Each scale is marked with a black spot, and there are thirty six on the lateral line with ten between the ventral and dorsal.

D. 17 : P. 14 : V. 9 : A. 8 : C. 20 3/3

NARROW-MOUTHED CARP.

A class of small fish that were referred to the carps by Buchannan, M'Clelland has formed into a new genus, which he calls systomus, from their small mouths, and of which we have several species. One is distinguished for a yellow caudal fin, edged with black.

Systomus.

ငါးစင်ပူ။ ညှင်ဝိုဘီ။

BLACK-BANDED SYSTOMUS.

Another species of systomus, with two small cirri to the upper jaw, and blackish bands on the sides, that grows as large as a barbel, is not uncommon at Tavoy. The ventral and anal fins are reddish, and there are twenty-five scales on the lateral line.

Systomus.

ငါးကြင်းစောက်။ ယာကွေး. ညှင်ကွီ။

BLACK AND RED TAILED SYSTOMUS.

A handsome species of systomus, that I think is undescribed, has the extremities of the dorsal, ventral, anal, and caudal fins, of a bright scarlet colour ; but the external rays of the caudal fin are deep black, contrasting boldly with the red rays. Two small barbules are attached to the upper jaw, inter-opercula black with a small black spot immediately above them, and sub-opercula tinged with red. The spinous ray of the dorsal fin is serrated, and there are thirty one scales on the lateral line, and thirteen on an oblique line from the base of the ventrals to the base of the dorsal. It is found from Tavoy to Toungoo.

D. 9 : P. 14 : V. 9 : A. 6 : C. 19.

Systomus.

ငါးခိုးမ။ (ငါးတပ္ပနီး။ *Tavoy.*) ယာဗီးမှင်း. ညှင်ဆင်ဗီး

BLACK SPOTTED SYSTOMUS.

Another species of systomus is abundant, with the general form of the preceding, but wanting its colours, though the gill covers are yellowish, and the ventral fin slightly tinted with red. It has no barbules, and the dorsal spinal ray is not serrated. There is a black spot on the dorsal fin, and on some specimens a black band across the caudal fin. Twenty four scales are counted on the lateral line, and nine in an oblique direction across the body. In general appearance it strongly resembles M'Clelland's figure of *S. malacopterus*, but corresponds nearest to the description of *S. sophore.*

D. 9 : P. 15 : V. 10 : A. 7 : C. 20.

Systomus sophore ? M'Clell.
Cyprinus " Buch.

ငါးခိုးငါးခိုးမ။ ယာဖြာအွေး ညှင်ဆင်ဝါ။

ROSE-FINNED SYSTOMUS.

Another species of systomus, with red-tipped fins, and without barbules, is common.

Systomus.

ငါးကြန်ရွတ်။ ယၢမံၢခ့ၢ့. ညၢ်မံခ့။

BLACK-TAILED SYSTOMUS.

Another small fish, from four to six inches long, with the caudal fin partly black, and hence called by the Burmese the black tailed fish, is, I think, a species of

Systomus.

ငါးမြီမဲ။ ယၢဆီၢ့ရီၢ့. ညၢ်စရိၤဒိၢ်မဲၢ်

YELLOW-FINNED SYSTOMUS.

A species of systomus with all the fins yellow, or tipped with yellow, the Karens call "the yellow finned fish." The first dorsal spine is short, and the second is serrated. There are 22 scales on the lateral line and 12 from ventral to dorsal. The fin rays are the same as *S. leptosomus* of M'Clelland, but that is only 1 $^1/_2$ inches long, while this is 6 inches.

D. $^2/_8$: P. 12: V. 8: A. 7: C. 19.

Systomus leptosomus, M'Clell.

ညၢ်ဘိဒံး

BLACK LINED SYSTOMUS.

This fish has nine longitudinal black lines on the body, like the black-lined *cirrhinus*, but is quite a different species; though the number of scales on the lateral line and across the body are the same. Its fins are tipped with red and it never exceeds four inches in length. It resembles M'Clelland's *S. pyropterus*, but I doubt its being the same species.

D. $^3/_8$: P. 18: V. 10: A. $^1/_6$: C. 19 $^5/_5$.

Systomus.

ညၢ်ဂိၤကနံၢ်

BLACK-BACKED SYSTOMUS.

A species of *systomus* about six inches long has a black back while young, but which fades with age. It has 20

scales on the lateral line, and 7 between the ventral and dorsal.

D. $^{2}/_{8}$: P. 15 : V. 9.

Systomus.

ငါးခုံဘုတ်သာ။ ယ၂ဒုၫ်ရှိ၇. ညဉ်တွဉ်ပှၢ်

RED SYSTOMUS.

A small reddish species with dark marking, and a silvery abdomen is seen occasionally, from Mergui to Toungoo, which is

Systomus.
Cyprinus canius, Buch.
" *ranipungti,* "

GREEN-BACKED SYSTOMUS.

A large species with a greenish back resembles
Systomus immaculatus, M'Clell.

ညဉ်ဖးစါ

TOUNGOO SYSTOMUS.

At Toungoo there is a plain species of systomus without markings, which I think differs from all the other that I have noted. The dorsal spine is serrated on the inner side and preceded by two other small spines.

Systomus.

D. $^{3}/_{12}$: P. 18 : V. 10 : A. $^{2}/_{6}$: C. 26 $^{3}/_{3}$.

BLACK AND RED SYSTOMUS.

One species, with the form of a barbel, has a black spot on the dorsal, and another on the caudal fin, while the ventral fins are tipped with red.

D. $^{3}/_{7}$: P. 12 : V. 10 : A. 7 : C. 18 $^{3}/_{3}$.

PERILAMP.

A small fish belonging to Cuvier's genus abramis, or bream, but which falls into M'Clelland's new genus perilampus, abounds here. The mouth is placed on the upper part of the head, the back straight from the head to the tail, and it appears to be nearly related to *P. perseus*, but they differ in the fin rays.

Perilampus.

ငါးပေါက်တော။ ယ၂ခ၂အွ၂. ညဉ်ဖိုၢ်ဘီ။
ညဉ်တိဉ်စွ။ ညဉ်ခဉ်အွဉ်ဖိ

SCARLET-FINNED PERILAMP.

A distinct species with reddish fins, the mouth opening upwards, and the lateral line near the edge of the belly, is common at Tavoy.

Perilampus.

ငါးစည်။ ယၢဖါဖျာ့ ညှင်ဖိုက်ဘိကဘျှင်။

YELLOW FINNED PERILAMP.

Another species has yellowish fins, and four long cirri.

Perilampus.

ညှင်ပိုက်ဘိထီခင်ဆူင်

RED-STRIPED PERILAMP.

Another small species of these fish with the mouth opening perpendicularly, has longitudinal red-stripes on the body.

Perilampus.

ညှင်ပိုက်ဘိဝိုးဝးနှါ

DOG-TONGUED PERILAMP.

One species without cirri, and with blue stripes, has been named from its shape, the dog-tongued perilamp.

Perilampus.

ညှင်ပိုက်ဘိထွံင်ဖျာ။

BLACK-TAILED PERILAMP.

This species has the tips and base of the caudal fin black, with light yellow in the interval. There is a slight line of black behind the gills, the belly is white, and the scales large.

D. 8: P. 11 or 12: V. 9: A. 8.

Perilampus.

ညှင်ပိုက်ဘိဝရိုးဖိခဲ်။

WHITE FISH.

A species of white fish is brought to the bazars in Maulmain, which has no barbules, and the dorsal fin is exactly over the interval between the ventral and the anal. Its fin-formula does not correspond exactly to any of the species described by M'Clelland.

D. 9: P. 14: V. 9: A. 12: C. 19.

Leuciscus.

ငါးစည်ပူ။ ညှင်ပိုက်ဘိ။

TAVOY WHITE FISH.

I have noticed a fish in the fresh-water streams of Tavoy, that resembles a species of white fish, but its mouth approaches the catastomi. It is sometimes a foot and a half long.

Leuciscus ?

ဗလူးခါ။ ယၢကျၢအွၤ. ညဉ်ပလူၢ်ခဉ်။

TENASSERIM WHITE FISH.

The head waters of the Tenasserim produce a species of white fish resembling *L. eligulatus ;* but the fin-formula differs.

D. 6 : P. 14 : V. 7 : A. 12 : C. 23.

OPSARION.

A small fish with a greenish back, and the dorsal fin behind the centre of the body, is not uncommon. It belongs to M'Clelland's genus *Opsarius.*

D. 8 : P. 12 : V. 8 : A. 19 : C. 30.

Opsarius pholicephalus ? M'Clell.

WHITE BELLIED OPSARION.

Another opsarion, with a silvery white abdomen, and golden green back, is nearly related to one of M'Clelland's species.

D. 9 : P. 12 : V. 7 : A. 20 : C. 19.

Opsarius albulus, M'Clell.
Cyprinus phulo, Buch.

ငါးရင်ပေါင်းစာ။ ယၢဖါ. ညဉ်ဗိၢ်။

BACAILA.

A species of opsarius resembling the preceding, with the same native names, I sent to Mr. Blyth, who said it was Buchannan's bacaila.

Opserius bacaila, M'Clell.
Cyprinus " Buch.

LOACH.

Two distinct species of loach in the mountain streams of the southern Provinces, I have seen, and there are probably others.

Cobitis.

ပစုသော။ ယၢဖျူကျံၢကဲၤ. ယၢဖျူၤ.
ညဉ်ဘၢဖျုဉ်။ ထးကံဉ်စ့။

SMALL CYPRIN.

A small cyprin about five inches in length, is common in the interior. It is of a dark slate colour, with about sixty scales on the lateral line.

D. 16: P. 16: V. 8: A. 6: C. 17.

Cyprinidæ.

ညှင်ဆွဲ။

BOMBAY DUCK.

A fish nearly related to the salmon is dried and exported in large quantities from Bombay, and has acquired the name of Bombay duck. It is found on all the sea coasts from Canton to Summatra, Tenasserim, mouths of the Ganges, and the coasts of Hindustan to Bombay.

Saurus nehereus,	Buch. BOMBAY DUCK.
Osmerus, ? "	"
Salmo (Harpodon) microps,	Lesneur.
Saurus ophiodon,	Cuv.
Laurida microps,	Swain.
Harpodon,	"
Triurus microcephalus,	"

HERRING, PIKE, AND FLAT-FISH.

The herring, pike, and flat fish tribes are represented by, flat-bellied herrings, thryssa-anchovies, Tenasserim-sardines, bristle-finned sprats, shads, chatæsi, fresh-water herrings, flying fish, half-billed gar-fish, pikes, plagusia soles, and brachirus-turbots.

FLAT-BELLIED HERRING.

A species of platygaster of the herring tribe is often seen in bazar, which resembles the common herring. The mouth is entirely vertical, and the dorsal fin commences behind a very small ventral. The caudal fin is forked and yellowish, and the opercula are yellow. The fin rays are,

D. 14: P. 13: V. 6: A. 4: C. 20.

Platygaster.

ငါးပြား။ ညှင်စပ်ကနှင်။

ANCHOVY.

The genus thryssa, says Swainson, "has the general aspect of the anchovy, engraulis, but the body is broader, the the mouth enormous, and opening almost vertical." The

species then that inhabits our waters may be denominated the thryssa-anchovy, though by some authors it is referred to the same genus, *Engraulis*, as the common anchovy.

Engraulis purava,	Buch. Ham.
Clupea "	" "
Engraulis purava,	Cuvier.
Thrissa magastoma,	Swainson.

ငါးထန်းရွက်။ ငါးပြား။

ENGRAULIS.

Another species of the anchovy tribe has the mouth opening horrizontally.

D. 1/7 A. 60.

Engraulis ?

ငါးနှံစွတ်။

BRISTLE-FINNED SPRAT.

Another small fish of the herring tribe so much resembles the preceding, that the Burmese call it by the same name. It is, however, easily distinguished by a long filament or bristle, which is attached to each pectoral fin. Both species are often called sprats by Europeans, and they belong to the same tribe.

Stipinna, Swainson.

ငါးပြား။ ငါးထန်းရွက်။ ငါးဆွံ့စား။

SARDINE.

There is a small fish of the herring family at Tavoy and Mergui, which I have not examined, but Dr. Morton thinks it is identical, or nealy related to the common sardine, a fish of the same genus as the anchovy.

Engraulis meletta ?

ငါးဝိန်းခဲငွေ့။

MALAY SHAD.

A fish of the herring family, with a deep notch in the upper jaw, characteristic of the genus alosa, abounds in the waters of Tavoy, and is often seen in the Maulmain bazars. It is called by the Burmese the Malay fish, and many being exported, dried, or salted from Tavoy, it has received at Maulmain the name of "the Tavoy fish."

The roe of this fish forms a valuable export from Summatra. "The Rajah of Siak," says Dr. Cantor, draws a revenue from this fishery of 72,000 guilders yearly."

Alosa toli,	Cuvier.
Alausa "	"

ပရူးငါး၊ငါးဓားဝယ်။ ယၢဖဲ၇. ညှင်အါစံ၊ညှင်ပဲဉ်။

RANGOON SHAD.

Another species of shad, or sable fish, is found in the estuaries of the Salwen and Irrawaddy.

Alausa ilisha,	Buch. Ham.
Clupanodon "	" "
Alosah palasah	Cuvier.

ငါးသလောက်။

CHATÆSUS.

Some of the fish sold under the name of the Malay shad, belong to the genus chatæsus, chracterized by the last ray of the dorsal fin "prolonged into a lengthened filament."

Chatæssus chacunda ?

TAPERING HERRING.

Another fish on our coast is of the herring tribe, and is characterised by possessing above the pectoral fins, "two groups of filaments, parting from a common base."

Coilia reynaldi,	Cuvier.
Trichosoma,	Swainson.
Trichosomus,	"
Chætomus	M'Clelland.

FRESH-WATER HERRING.

This species the Karen call the leaf-fish, from its shape. Swainson says: "It has the general appearance of a herring, and is a rare Indian fresh-water fish, considered by Pallas as a gymnotus, but removed by Cuvier to the herring family." It grows much larger than a herring, and abounds at Toungoo. The ventral, anal and caudal fins are united into one, containing from one hundred to one hundred and ten rays. The dorsal is very small with only six rays, and the pectoral has fifteen.

Notopterus hapirat ?

ငါးဖယ်။ ယၢဖုံ၊ ညှင်လင်။

GAR-FISH.

A handsome species of gar-fish inhabits our fresh water streams, which in its colouring and general appearance cannot be distinguished from the gar-fish of New England, but its fin-formula is materially different. It has light green upper parts approaching to silvery white beneath, and the caudal fin is truncated. The Karens call it the bird-fish, from its long bill.

D. 11 : P. 9 : V. 6 : A. 16 : C. 19.

Belone cancila. Buch. Ham.

ငါးဖောင်ရိုး။ ယၢထိၢ. ညှင်တိန်။

TOUNGOO GAR-FISH.

A species of gar-fish is very abundant in the Sitang at Toungoo, distinguished by a "deep blue longitudinal band" on the posterior half of the body, very narrow, "bordered by a broader shining silvery one."

Belone caudimaculata, Cuvier.

ငါးဖောင်ရိုး။ ညှင်တိန် တၢ်စ္ဂိန်။

HALF-BILLED GAR-FISH.

In smooth weather at the mouth of our rivers, the water is sometimes seen almost covered with a curious gar-fish, whose upper mandible is very short, while the lower is as long as the ordinary gar-fish. Its snout forms a perfect counter-part to that of the scissors-bill.

Hemiramphus.

ပင်လယ်ငါးဖောင်ရိုး။ ယၢထိၢပၣ့လဲၢ. ညှင်တိန်ဗိန်လဲန်။

PIKE.

I have not met with pike in these Provinces, but it probably exists, for Major Phayre sent Dr. M'Clelland a species from Aracan, and M'Clelland wrote in his Journal: "We have been favoured by Lieut. Phayre with two fishes from Aracan, one a species of cyprinus from the Lemgoo river, the other a kind of pike." But I am not aware that it has been described.

Esox.

FLYING FISH.

The flying-fish is often seen fluttering above the waves off our coasts.

Exocetus nigripennis, Cuvier.

ငါးပြန်။

TURBOT.

I have met with a fish of the turbot tribe, dark grey on the left side ; with the fins, eyes, and mouth like the common turbot.

Rhombus maximus ?

ငါးခွေးလျှာဖြင်ဝတ်။

BRACHIRUS TURBOT.

A small flat fish, with the aspect of the turbot, with two pectorals, the dorsal, caudal and anal united, and of a dark grey colour on the upper or right side, is sometimes in market.

Synaptura commersoniana ?		Cantor.
Solea	"	Cuvier.
Brachirus	"	Swain.
Pleuronecte commersonien,		Lacep.

ငါးခွေးလျှာ။ ယာထိုးဖျား. ညှင်ထိုင်ဖျား

TENASSERIM SOLE.

A small fish of the sole family that grows to nine inches or a foot long, is sometimes seen in bazar. It has no pectoral fins, and the dorsal, caudal and ventral fins are united, so it is a species of plagusia. The natives think that two of them always swim together, with their flat, uncoloured sides united.

Plagusia potous, Cuvier.

ငါးခွေးလျှာ။ ငွေ့ဖျား. ညှင်ထိုင်ဖျား။

CAT-FISH.

The cat-fish which Linnæus included in the single genus *Silurus,* and very numerous in both species and individuals, equalling if not exceeding the carpe.

ADIPOSE-FINNED CAT-FISH.

One section of the tribe, *Pimelodinae,* is easily recognised by possessing a second adipose dorsal fin. One of the most common of the large species in the estuaries, belongs to this sub-family.

Pimelodinæ.

ငါးတန်။

SHORT-HEADED CAT-EISH.

A large cat-fish with a comparatively short head, small second dorsal fin, and a rather long anal, is often seen in bazar. It has two barbules on the upper jaw, and four on the lower.

Pimilodinæ (Breviceps ?)
" *Felichthys.*

ငါးမြင်း။ ယ၂မျှ. ညှင်ကမျိုး။ ညှင်မျိုး။

EIGHT BARBULED CAT-FISH.

A cat-fish about a cubit long, with two dorsal fins, and four cirri on the upper and four on the lower jaw, is not uncommon.

Pimelodinæ.

ငါးမြင်းအုပ်ဗဝး။ ငါးအုပ်ဗဝး။ ယ၂မျှ၊ ရူးနိုး. ညှင်မျိုးရူခင်။

LARGE MAILED CAT-FISH.

A cat-fish with a long head, and mailed to the dorsal fin, is an inhabitant of our estuaries. It has strong spines in the dorsal and pectoral fins, which are serrated on the inner sides only, and resemble in its general appearance *Pimelodus asperus.* There are four cirri to the under jaw, and two to the upper, which are united by a membrane half their length to the head.

D. 1-6 : P. 1-8 : V. 6 : A. 14 : C. 16 (*long rays.*)

Pimelodinæ.

ငါးရောင်။ ယ၂ထိန. ညှင်ထိး။

SMALL MIILED CAT-FISH.

A small fresh-water mailed cat-fish is common, and looks like the young of the preceding, but it has a different Burmese name.

Pimelodinæ.

ငါးအိုက်။

TOUNGOO MAILED CAT-FISH.

A large mailed cat-fish is common at Toungoo resembling the above, but there are four cirri to both jaws, and they are not united ; in which it agrees with the following species.

Pimelodinæ.

SERRATE-SPINED CAT-FISH.

This fish resembles the preceding, but the head is less mailed, and the spines of the dorsal and pectoral fins are serrated on both sides. The cirri and fin-formula are the same, but the upper cirri are not united by a membrane to the head. The Burmese call both by the same name.

Pimelodinæ.

ငါးရောင်။

LONG DORSAL-FINNED CAT-FISH.

Another common cat-fish from Tavoy to Toungoo, belongs to the section of pimelodus, which has the adipose or second dorsal fin "of such considerable length as almost to fill up the interval between the first dorsal and the caudal, while it is very low at both extremities." The first soft ray of the dorsal fin is prolonged much beyond the others. The muzzle is narrow, rounded, and has four short cirri on the lower jaw, and two on the upper, equalling the length of the whole body.

Pimelodinæ.

ငါးစင်ဝိုင်းကျွဲ။ ယၢဆူၢခဲၤ့ ညဉ်ဆှဉ်ကူၤဖးဒိဉ်။

TOUNGOO LONG-DORSAL CAT-FISH.

A small fish with a long adipose dorsal, a large black spot behind the gill covers and another before the caudal, pectoral spines serrated on one side only, and a forked tail, is not uncommon at Toungoo. The sides are covered with a greenish yelllow pigment on a dark ground. It has four barbules on the lower jaw, and two on the upper as long as the body.

D. 1–7 : P. 1–7 : V. 6 : A. 8 : C. 20.

SILVERY CAT-FISH.

At Toungoo there is a remarkable silvery white cat-fish with the long second adipose dorsal fin ; and the head not mailed. There are four rather long cirri on the lower jaw, and four, two of which are short, on the upper. It has one bony and seven flexible rays in the dorsal fin.

Pimelodinæ.

BLACK BLOTCHED CAT-FISH.

Another smooth headed cat-fish at Toungoo is distinguished from all the other species by being covered with

large blotches of black irregularly disposed at short intervals. The first rays of the dorsal and pectoral fins are prolonged, and it has four cirri on the upper jaw, but two only on the lower.

D. 7 : P. 13.

Pimelodinæ.

TOPSY-TURVEY FISH.

This is an odious looking, small, fresh-water fish, with the general form of the river bull-head or miller's thumb, but it appears to be a cat-fish of the tribe with a second adipose dorsal fin. The ventral fins are placed far back under the second dorsal, the head is mailed, with four cirri on each jaw ; the two on the upper one are very long and two are very short. Its abdomen is enormous, as large as that of a sea porcupine, and the natives say it always swims on its back, and hence they call it "the back-going fish."

Pimelodinæ.

ငါးနောက်သွား။ ယၢမျိုးအၢ. ညဉ်လဲၤချူး။

ARIUS.

I have noted two or three species of the *Pimelodinæ* with teeth on the palate characterizing the genus *Arius*: One is *A. Buchanii*, and other *A. militaris*, and a third is a small species with 8 cirri, and the fin rays are,

D. 1-6 : P. 1-14 : V. 6.

Arius.

BAGRUS.

Bagrus forms another genus of the *Pimelodinæ*, characterised by having teeth on *vomer* or top of the mouth, as well as on the palatal plates. One species that I sent Mr. Blyth belonged to this genus, and I have noted others.

Bagrus cavadius.

LARGE SILURE.

The tribe of cat-fish characterized by the "tail and anal fin very long," contributes several species. One which is said to grow as large as a man, has four cirri on the upper jaw and none on the lower; and the first ray of the dorsal fin is prolonged.

Silurus.

ငါးပက်။ ယၢယဲၤ. ညဉ်ကပုၤ။

SMALL CAT-FISH.

A small cat-fish of the same tribe, has four cirri on the upper and four on the under jaw.

D. 1-5 : P. 1-5 : V. 6 : A. 50 : C. 18.

Silurus.

ငါးသံမျိပ်။ ညှင်ဘျားရွှ။

TWO-BARBULED SILURE.

A small fresh-water cat-fish, has only two cirri, resembling Lacepede's *Silure deux taches.*

Silurus.

ငါးမြင်း။ ယၢရှုး. ညှင်ကမျိုး။

SILVERY CAT-FISH.

A small pretty silvery cat-fish, with two long cirri to the upper jaw, is often brought to the bazars in Maulmain, which the natives call by the same names as some of the preceding.

Silurus.

ငါးနူသန်း။ ယၢဖုအွၤ. ညှင်ပဲဝါ။

ROUND-TAILED CAT-FISH.

A species of silure with a rounded caudal fin, and strong spines on the pectoral, is found in the fresh waters, of about nine inches long.

D. 7 : P. 1-6 : V. 8 : A. 100.

Silurus.

ငါးကျေး။ ယၢဆၤ. ညှင်ဆါ။

FORK-TAILED CAT-FISH.

A small fresh-water silure, six inches long, with the caudal fins forked, is common.

Callichrus. Buch.

ငါးနူသန်း။ ယၢဖုအွၤ. ညှင်ပဲဝါ။

TOUNGOO CAT-FISH.

One of the most common cat-fish at Toungoo, is a silure with a very small dorsal fin of three rays, and a large black spot behind the gills. It has two long barbules on the upper jaw, and two very short ones on the lower.

D. 3 : P. 1/12 : V. 7.

Callichrus.

LARGE FORKED TAILED SILURE.

A large cat fish, two or more feet long, belonging to the same genus as the last, but with five rays in the dorsal, is also of frequent occurrence in the Sitang at Toungoo.

Callichrus. ညှင်ပဲ၊

SMALL SILURE.

A small diaphonous silure is a common Sitang fish, with two short barbules on the upper jaw, and a dorsal fin like the preceding species.

Silurus.

SILONIA.

A species of *Silonia*, with a minute second adipose dorsal fin, and two small cirri, is not uncommon, but the vernacular names do not distinguish it from the preceding species.

D. 1/6 : P. 1/14 : V. 6 : A. 37 : C. 16 2/2.

ငါးနွဲသန်း။ ယၢဖ့ၤအွၤ. ညှင်ပဲ၎

The Karens distinguish two allied species, which the Burmese call by the same name.

ယၢဖ့ၤဖိၢထိၤ. ညှင်ပဲ၎ဒိုင်ကိဝ်
ယၢဖ့ၤမျဲၤမျိၤ. ညှင်ပဲ၎လုး

LARGE BARBULELESS CAT-FISH.

A large cat-fish found in the estuaries, with two dorsal fins and no cirri, is not rare. It is said to grow six feet long, and weigh more than a hundred pounds. There are two species that are called by the same name. One with wide truncated muzzle, the other with a pointed snout.

Ageniosus.

ငါးမြင်းရင်း။ ယၢဈၤ. ညှင်ကမျိၤ။

SMALL BARBULELESS CAT-FISH..

A small species of fresh-water cat-fish is also distinguished by being destitute of cirri.

Ageniosus.

PLOTOSUS CAT-FISH.

There are several species of cat-fish with the dorsal, caudal, and anal fins united, which are called by the same Burmese names, but the Karens distinguish three species.

Plotosus.

ငါးခူ။ ယၢကိၢ. ညၣ်ကိၣ်။ ညၣ်ကိၣ်ဘိ။ ညၣ်ကိၣ်ပနၢ်။

CLARIAS CAT-FISH.

This is a small fresh-water fish, that differs from all the preceding, by having the caudal fin distinct, characteristic of the genus clarias. The Burmese do not distinguish it from the preceding. A specimen that I sent Mr. Blyth he said was

Clarias magory.

ငါးခူ။ ယၢကိၢ. ညၣ်ကိၣ်စ့နၢၢ (*Tavoy.*)

LONG-HEADED CAT-FISH.

A cat-fish with a prolonged flat head, the snout very broad, two barbules on the upper jaw which is longer than the lower, on which there are four barbules, is called cat-fish by the Burmese.

Sorubium.

ငါးကျောင်း။ ယၢဆူၢထီၢနိၣ. ညၣ်ဆွၣ်ခၣ်။

SMALL SORUBIUM.

A smaller species than the preceding, with the same generic characteristic, is common, and other small species of pimelodinæ go by the same native names.

Sorubium.

ငါးစင်ရိုင်း။ ယၢဆူခဲၢ့. ညၣ်ဆှၣ်ကၢ့။

SHARK-SNOUTED CAT-FISH.

This species has a long pointed cartilaginous snout, with the mouth opening below it like a small shark. It has two short cirri on the upper jaw, and four on the lower. There are two dorsal fins, and the dorsal and pectoral spines are serrated on both sides.

Sorubium.

ငါးရောင်။ ယၢထိၣ. ညၣ်ထိး။

LARGE CAT-FISH.

A cat-fish which is sometimes six feet long and a foot wide, inhabits our estuaries.

ငါးရွေ။ ယၢမု. ညဉ်မုၢ်

OTHER CAT-FISH.

There are three or four other species, with distinct native names, which I have not examined beyond ascertaining that they are cat-fish.

ငါးဓားလွယ်။ (*a cured cat-fish in bazar.*)
ငါးတောက်။ ညဉ်မံဆူဉ်။ (*a fresh-water fish.*)
ငါးပစယ်။ (*Tavoy.*) ညဉ်နၢတြ။ (*an estuary species.*)
ငါးသလီ။ ညဉ်မုၢ်စိဉ်လဲဉ်။

CARTILAGINOUS FISH.

We have no sturgeons among our cartilaginous fish, but the sharks and rays are very numerous, with one or more species of saw-fish, and torpedo.

SHARK.

Sharks are exceedingly numerous along the coast. Between Tavoy and Mergui I have seen them gamboling around my boat by dozens. At Mergui, large quantities of shark's fins are exported by the Chinese as a delicacy. There are two or more species, but I have not studied them. Gigantic fossil teeth of a species of shark are found on the Aracan coast.

The most common species seems to be

Stegostoma fasciatum,	Bloch.
" *carinatum,*	Blyth.
Squalus fasciatus,	Bloch.
" *tigrinus,*	Linn.
" *longicaudus,*	"
Squale tigre,	Lacepede.
Scyllium heptagonum,	Ruppell.
Laroussette tigree,	
Zebra Shark,	Shaw.

ငါးမန်းဖြူ။ ငါးမန်းကျော်။

Another species the Burmese call

ငါးမန်းဖြူခေါင်းတုံး။

HAMMER-HEADED SHARK.

A hammer-headed shark is found on our coast which is common at Nantucket, the English channel, the China seas and Australia.

Sphyrna Zygæna,	Linn.
" *tudes,*	Miiller.
Squalus Zygæna,	Forshal.
Zygæna malleus,	Rirso.
" *marteau,*	
" *tudes,*	Valencin.
" *lewisii,*	Griffith.

ငါးမန်းသန္ဓတ်။

Another species the Burmese call

ငါးမန်းကျွဲ။ ယၢကမၤ. ညဉ်ကမီ။ ညဉ်ကမီလိဉ်။

SAW-FISH.

A species of saw-fish, with its snout "produced into an osseous, flat, sword-shaped plate, armed with spines on the sides," frequents our waters. The bony snouts are sometimes seen two feet long, and are by some supposed to belong to the sword-fish.

Pristis semisagittatus,	Shaw ?
Squalus "	

ငါးတတ်ဝဲ။ ယၢကၣဝဲ. ညဉ်ကဝဲၢ်။

RHINEODON SHARK.

The natives describe to me a species like rhineodon, "with the mouth placed at the tip of the snout."

Rhineodon.

ငါးမန်းဟိုင်း။

RHINOBATUS RAY.

A fish of the ray tribe with the general appearance of *Rhinobatus ligonifer* Cantor, but with the snout less contracted, and more thorns on the scapular region, *Rhinobatus.*

SCATE.

There are several species of scate on our coasts, and all that I have observed have the tail armed with serrated spines. One species common at Monmagon, is

Hypolophus sephen,	Forskal.
Raja "	"
Trigon "	
" *forskalii,*	Ruppell.

လိပ်ကျောက်တခွန်။

TORPEDO.

The torpedo, or electrical fish, is said to be found on the coast, but I have not met with it.

TORTOISE-FORMED FISHES.

Of Swainson's order the *Plectognathes*, or tortoise-formed fishes, we have representatives, in the sea-porcupines, and the fishing frogs.

FOUR-TOOTHED SEA-PORCUPINE.

This is an odious looking fish, that has the power of inflating its abdomen to an enormous size, which compels it to turn on its back. It belongs to Linnæus' genus tetradon, so named from each jaw being divided into two parts so as to form four teeth; and is called sea-porcupine, because several of the species are covered with spines. The species common off this coast is perfectly smooth on the back, which is covered with bright, greenish-yellow spots, but the belly is inlaid with numerous small spines, like the thorns of a rose-tree. Authors who restrict the sea-porcupines to the genus diodon, would call this species square fish. It is nearly related to the American toad fish, which is deemed poisonous, but our fish is eaten by the poorer natives. The fin rays are,

D. 10: P. 16: A. 10: C. 7.

This is probably *Tetrodon fluviatilis*, Cuvier, which Mr. Blyth has had from Burmah, but I have no description of that species.

Tetradon fluviatilis,	Cuvier.
Dichotomycteris	Bibron.

ငါးပူတင်း၊ ယၫအူၫဖြိၫ တၢၢ်တိၵ်။

YELLOW SEA-PORCUPINE.

Another species is yellow without spots, but of a leaden colour on the back. Except the spots on the fins it corresponds precisely with Cantor's figure. The vernacular names are the same as the preceding species.

Tetrodon naritus,	Richardson.

SMOOTH SEA-PORCUPINE.

A smaller species of sea-porcupine, has the abdomen as well as the back perfectly smooth; and is probably the species that Mr. Blyth identified with

Tetrodon cucutia.	
Monnotretus,	Babron.
Leiodon, (probably)	Swainson.
Leisomus marmoratus,	Swain.

ငါးပူတင်းသား။ ယၢအူၢဖိၢဖိၢ. တၢၢ်တိၢ်ဖိ။

FISHING FROG.

An ugly little fish resembling a species of lophius, the angler, fishing frog, or sea devil, which I have not examined, frequents our coast.

Lophius ?

ငါးကျောက်ဖား။ ယၢကဆၢ. ညၢ်ကဆီယိၢ်။ ညၢ်ထးကွး။

EEL TRIBE.

The eels are not numerous in individuals, but nine or ten species have been found in the country.

COMMON EEL.

The eel most usually seen in bazar, which belongs to the genus anguilla, with pectoral fins, is identical with a species described by Dr. M'Clelland, from Aracan, of which "the colour above is dark olive-green or brown, and white beneath."

Anguilla bicolar.

ငါးလင်ပန်း။ ယၢထံၢ. ညၢ်ထံ

OTHER COMMON EELS.

The natives describe another species resembling the above, but for which they have no destinctive name. It is probably one of three other species that inhabit Aracan, two of which, Major Phayre sent Dr. M'Clelland from Sandoway.

Anguilla aracana.
" *brevirostris.*
" *nebulosa.*

MURÆNA EEL.

Of the eels belonging to the Linnæan genus muræna, Dr. M'Clelland received specimens of one species from Sandoway.

He made a new genus for it which he called *Therodontis*, but Dr. Cantor makes it a synonyme of *Muræna*.

Therodontis reticulata,	M'Clell.
Muræna,	Linn.

SERPENT HEARTED EEL.

There is a peculiar tribe of eels in India which are characterized by having the heart far back in the body, like a serpent, and not near the gills, as in ordinary eels. Their general appearance too is more that of a snake than an eel, but a large opening for the gills under the throat proves at a glance that it is a fish and not a serpent. The present species was first described by Buchannan, who said it had neither fins nor scales; and this is the first impression, but on closer examination it will be found to have scales, and narrow fringes may be seen near the tail, representing the dorsal and anal fins. It corresponds in all important respects with M'Clelland's description of *P. striatus*, but the tail is rather shorter; there are no black spots on the back, and the under parts are orange-white, interspersed with dark patches or spots, of the same olive-green colour as the back.

Pneumabranchus striatus,	M'Clell.
Unibranchapertura cuchia,	Buchan.

ငါးရှည်။ ထုံးထိုး. တံးတူး။

PHAYRE'S SERPENT-HEARTED EEL.

This eel Dr. M'Clelland received from Major Phayre in Aracan, and deeming it the type of a new genus he named it *Ophicardia Phayriana*. More recently however Dr. Cantor has stated that M'Clelland was mistaken, and that it is identical with *Monopterus javanicus*. It has no scales, and is thus described by M'Clelland.

"The body is not compressed, but is slightly conical from the head to near the vent; the tail from thence becomes much compressed and very narrow. The tail is emarginated with an adipose duplicature of the skin, like the blade of an oar.

"The colour above is dusky-brown, minutely dotted with brownish black, the lower parts are of a somewhat lighter shade.

"The length of the specimen is about 20 inches.

Monopterus javanicus,	Lacepede.
" *lævis,*	Richardson.
" *cinereus,*	"
Unibranchapertura lisse,	Lacep.
Ophicardia phayriana,	M'Clell.
" *xanthognatha,*	Richard.

ငါးရှည်နီ။ တံတူးဝိုး။

SERPENT-TRUNKED EEL.

Another eel from Aracan M'Clelland placed in his new genus ophisternon, but Cantor says his characters are erroneus, and that "*Ophisternon* M'Clelland, is identical with *Symbranchus.* Of the species from Aracan, he adds: "Both description and figures are too defective to identify the species."

Ophisternon hepaticus,	M'Clell.

CONGER EEL.

When Dr. M'Clelland was editor of the Calcutta Journal of Natural History he declared there were no conger eels in India, and the species that had been referred to that genus by Buchannan, who accompanied Symes to Ava, were, he said, the type of a new genus which he named *Muræneso*x, or Pike-eels. Thus the matter stood till Dr. Cantor turned back the shadow on the dial to the point where Buchannan left it. "*Absence of tubular nostrils,*" he says, is "given as a character distinguishing *Muræneso*x from *conger.* The character however is incorrect, as in all the supposed species of Mr. M'Clelland the anterior apertures of the nostrils are provided with a tube. Dr. Cantor describes one species found on the coast, which grows more than seven feet long. The Burmese name signifies "the fish that comes on board the ship," as they are occasionally washed upon the deck.

Conger talabon,	Cuvier.
Muræna "	"
*Muræneso*x *lanceolata,*	M'Clell.
" *exodon,*	"
" *serrodentata,*	"
" *exodentata,*	"

ငါးသင်္ဘောပေါက်။

LONG ANAL FINNED CONGER.

This species is something shorter and thicker than the preceding, but with the same colouring, and would not be distinguished by a native; yet the Karens in the Delta of the Irrawaddy have four different names for sea eels. They regard them all as species of pelagic snakes, and some say their bite is poisonous, though not fatal.

Conger bagio,	Buch. Ham.
Muræa "	" "
Conger longirostris,	Bennett.
Murœnesox tricuspidata,	M'Clell.
" *hamiltonii*,	"
" *bengalensis*,	"
Congrus tricuspidatus,	Richardson.
Conger hamo,	Temminck.

ငုးညှဉ်ထံ၊ ငုးညှဉ်လဉ်၊ ငုးညှဉ်ဆါ၊ ငုးညှဉ်ဝဲန်၊

LUMP FISH.

This small fish which grows to six or eight inches in length resembles *Platycara nasuta*. It is a sucker and adheres by the apparatus on its breast to rocks.

Cyclopterus.

ညှဉ်ဖိဒ်ဖိန်၊

Herpetology.

The reptiles of Burmah seem to be more generally diffused than any other section of our fauna. One of the crocodiles that we so often see sunning itself on the banks of our turbid streams, is the same species that the Egyptian was depicting on the tombs of his ancestors three or four thousand years ago. "The quick-eyed lizard, shooting through the grass,"* is the same reptile that is seen at the Sandwich Islands; and the Burmese turtle curry differs only in the cooking from the famous turtle soup, which forms so strong an attraction to the dinners of the Aldermen and Lord Mayor of London.

Still the researches of Major Berdmore, who has given special attention to this branch of our fauna, have been rewarded with numerous species new to science.

TORTOISE TRIBE.

The land tortoises, marsh tortoises, river tortoises, and sea tortoises or turtles, have all representatives in the Tenasserim Provinces, Pegu, and Aracan.

LAND TORTOISES.

Two species of land tortoise have been described as new species by Mr. Blyth, from specimens furnished him by Major Phayre, and there is at least one known species more in the Tenasserim Provinces.

RED-HEADED TORTOISE.

This is a small tortoise of which I sent a specimen to America, where it was pronounced to be

Testudo radiata.

လိတ်အခေါင်နီ။ ချံ၂ရှုး. ချံ၂ဦး။

PHAYRE'S TORTOISE.

TESTUDO PHAYREE, Blyth, is the great Burmese land tortoise. "Carapax," says Mr. Blyth, smooth, as in T. RADI-

* *Euprepis rufescens.*

ATA and T. ANGULATA, but much flatter; oblong, subquadrate, its free marginal plates reverted and moderately serrate. Nuchal plate broader than long. Caudal plate *double*. Gular plates longer than broad, moderately notched: Anal broader than long, and deeply notched. Beak unemarginate. Fore-limbs covered with very long and thick imbricated scales, much as in a Pangolin; the claws elongate, strong and thick: similar great elongate scales at the heel; and a group of five principal obtuse spines on either side of the tail, the medial of them remarkably strong and thick. Two or more smaller spines or thick elongate scales above the tail. Colour wholly black, or mingled more or less with buff-yellow. In the young, the scales are probably of the latter hue, with gradually increasing black centres. Limbs deep brown; some of the claws yellow in some specimens: the head and neck paler brown, strongly tinged with yellow. Our largest specimen is 20 inches long in a straight line, or 22½ inches measured over the curve of the carapax, from front of nuchal plate to middle of caudal notch: greatest breadth 14½ in. or 20½ in. following the curve, from one obtuse lateral angle to the other. Height 1¼ in. head to occiput 4½ in. The shell of this individual is wholly black, with merely a few slight indications of the ochreous-yellow colouring: all the claws deep brown. Another, rather smaller, has the appearance of great age, with most of the plates of its carapax more or less completely united, so that the form of some cannot be traced. Colour irregularly mingled black and dull buff-yellow; the plastron chiefly black; and several of the claws are yellow wholly or in part.

တောလိပ်။ တောင်လိပ်။

YELLOW LAND TORTOISE.

In Hindustan and Ceylon only one species of land tortoise is known, *Testude Stellata*; but in Burmah beside the species described above there is a smaller one which Mr. Blyth has named *Testudo Elongata*. The scales of the limbs are small. Colour of half grown specimen orange-yellow, each plate having a large black centre, which mostly disappears with age, leaving a few more or less radiating black spots on those of the carapax, and often a black spot on only the large medial plates of the plastron. Head and limbs brown, much tinged with yellow. Length of an adult

13 in. in a straight line, by 8 in. across, or rather more towards the hinder part of the body. Height $5\frac{1}{4}$ in. Head to occiput $2\frac{3}{4}$ in.

This may prove to be the same species as the "red-headed tortoise."

MARSH TORTOISES.

Five different species of terrapins or marsh tortoises, are known to inhabit Pegu and Aracan. Four of them have been sent by Capt. Berdmore from Shwaygyen. One is "a small box terrapin which, Mr. Blyth says, "has only been satisfactorily known to inhabit Java. It is the CHISTUDO DENTATA, (Gray), *C. Diardii* of Dumeril and Bibron, *Emys Hasseltii*, Boie, and *Cyclemys orbicularis*, Bell: remarkable among the CISTUDINES for its flattened form and notched hind-margin of sternum. Colour of naked parts olive-gray, with longitudinal dull orange streaks on the neck, and a broader sincipital streak of the same. It is unusually quick in its movements, for a tortoise! He has also sent the curious lizard-tailed and large-headed terrapin (PLATYSTERNON MEGACEPHALUM, Gray), heretofore only known from China; and several living specimens of EMYS OCELLATA, Dumeril and Bibron; and the very young of EMYDA PUNCTATA, Gray, (*Cryptopus granosus*, D. and B). EMYS OCELLATA would appear to be the commonest species in the Burmese rivers; and its naked parts are olive-grey, the crown blackish, with a yellowish-white v-like mark over the snout, continued as a supercilium over each eye and back upon the neck; another similar line behind the eye, and both are often more or less broken into spots. Carapax dusky, mottled with yellowish; a great black spot surrounded with a pale *areola* upon each discoidal plate; dorsal ridges blackish with pale border: and lower-parts wholly yellowish-white. Some are brighter-coloured than others; and the *ocelli* become proportionally smaller as they increase in size. The carapax of our largest specimen measures 9 by $6\frac{1}{4}$ in.; but it probably is not nearly full grown.

လိပ်တိုက်။ · လိပ်ဝေါက်။

On the Aracan coast, adults of E. DHONGOKA, Gray, approaching to 2 ft. in length of carapax, would appear to be very common.

လိပ်ပူတ်။

BERDMORE'S TERRAPIN.

Among Major Berdmore's collections from Shwaygyen, Mr. Blyth found a new species of marsh tortoise, "quite distinct, he wrote, from the true *Emy's occellata*;" and he named it

Emys Berdmorei.

SOFT TORTOISES.

Soft tortoises abound in many of the rivers, and their eggs are often seen in the bazars. Mr. Blyth refers them to two species: TYRSE GANGETICA, which when young has four occellated spots on the back; "and" CHITRA INDICA much flatter with proportionately much smaller head, which species attains an enormous size."

လိပ်ကျေး။ ခုံးဆါ. ခုံးစင်။

TURTLE.

Sea tortoises, or turtle, abound on our coasts. Both the green turtle, and the logger-head are common. The latter is said to swarm in the Bay of Bengal.

Chelonia virgata	Cuvier.
" *olivacea.*	

လိပ်ပြင်ဝန်။

TORTOISE-SHELL TURTLE.

The Hawks-bill, or Tortoise shell- turtle, has been sent from Mergui; but not a little of the Mergui tortoise shell is the shell of the common green turtle.

Chelonia imbricata,	Linn.
La tortue caret,	Dutertre.
Scaled tortoise,	Grew.
Testudo marina americana,	Seba.
Hawksbill turtle,	Brown, Catesby.
Testudo caretta,	Knorr.
La tuilee.	Daubenton.
Caretta imbricata,	Merrem, apud Gray.
Chelonia multiscutala,	Kuhl ?
Chelonee faux caret,	Lesson.
Chelonia carretta,	Temminck, and Schlegel.

CROCODILE.

Two species of crocodile inhabit our rivers, and sea shores, both of which are usually denominated alligators; but alligators are peculiar to America, and a glance at the scaly ridge on the back of the hind legs of the Tenasserim reptiles is sufficient to distinguish them from the alligators, which have the hind legs rounded.

COMMON CROCODILE.

The common crocodile of the Nile, the leviathan of the book of Job, is one of the species common in Tenasserim waters, and the other species is very slightly distinguished from it. Crocodiles are numerous in all our tide-water streams. During a two hours' pull up a small river, I once counted fourteen sunning themselves on the mud-banks. They often carry off the natives, and a single animal, emboldened by his successes, will usurp dominion over a particular portion of a river, where he becomes the terror of every boat's crew that passes. The steersman occupies the most dangerous position; for the crocodile's mode of attack is to glide up silently to the bow or stern of a boat, them turn suddenly, when with one stroke of his powerful tail, close to the top of the boat, he sweeps into the water whoever is within its reach, and the stunned victim becomes an easy prey. A Karen chief with whom I was acquainted, perished in this way two or three years ago, at a point in the river Gaing, which had previously been known as the desmesne of one of these river monarchs. Persons sleeping in their boats moored to the shore, have sometimes awaked in the jaws of these monsters; and one carried off a Burman a few years ago, from the back of a buffalo that he was riding across a small stream, under the very shadows of the walls of Tavoy.

Crocodilus vulgaris,	Cuvier.
" *palustris,*	Lesson.

မိကျောင်း။ ၁မ၂.-မ၂. သစ်၊ ကမ်း၊ သမ်း။

CEYCHELLE CROCODILE.

One species of crocodile that I examined had "the upper jaw surmounted by two rugged ridges, each commencing

from the angle of eye." This, then, is the species that tennants the Seychelle Islands.

Crocodilus porosus,	Schneider.
" *byporcatus,*	Cuvier.

မိကျောင်း၊ ၁မ၂.-မ၂. ကမၼ်း

Mr. Blyth says we have the gaviel, *gavialis gangaticus.*

GECKO.

The geckos, or house-lizards, are very numerous in the Provinces, and embrace three or four different species.

FLAT-TOED GECKO.

The large gecko, which the Burmese call *touktay*, and the Malays *toke*, in imitation of the sound it makes, is very abundant. It disputes the possession of every cranny with the rats, and sometimes devours their young. It has been seen making its repast on the small gecko. The natives think it noxious, and always avoid the reptile. According to Dr. Cantor, it is the Indian salamander of old writers; and new comers usually bottle up a few individuals to send to their friends as specimens of the rare and unknown productions of the East, not aware that it was well described, and figured by the Catholic missionaries in Siam during the reign of Louis XIV.

Platydactylus gecko,	Linne.
Salamandra indica,	Bontius.
Gecko ceilonicus,	Seba.
Lacerta cauda tereti mediocri,	Linne mus. Adolph.
Lacerta gecko,	Linne.
Gecko teres,	Laurenti.
Gecko verticillatus,	"
Salamandre ou gecko,	Knorr.
Stellio gecko,	Schneider.
Common gecko,	Shaw.
Gecko guttatus,	Daudin. apud Gray.
Lacerta guttata,	Hermann.
Gecko verus,	Merrem.
Gecko annulatus,	Kuhl.
Gecko a gouttelettes,	Cuvier.
Platydactylus guttatus,	Cuv. apud Guerin.

တောက်တဲ့၊ တိုးတဲ့ တိတဲ်

COMMON GECKO.

The small gecko so abundant in our houses, differs generically from the preceding species, in having the "basal joint of four or five of the toes in each foot forming an oval disk." It is identical with the gecko seen in the houses in Calcutta.

The spider of the English bible, Proverbs 30: 28, was undoubtedly a small gecko represented by this species, and the word was so rendered in the Syriac version made in the second century, and in the Vulgate Latin made in the fourth century. Jerome translated:

> "The gecko taketh hold with her hands,
> And dwelleth in king's palaces."*

Robinson says: "The opinion of the celebrated Bochart, that the newt, a species of small lizard, is meant, seems in every respect entitled to the preference, [i. e. to that of spider.] This reptile answers to the description which the royal preacher gives of her form and habits, and is according to the testimony of ancient and modern writers, found to take up its abode in the dwelling houses of the east." There is an approximation to the truth in these remarks, yet they contain several errors. Passing over the fact that newts are not proper lizards, though supposed to be in the days of Bochart, no newts are known to take up their abodes in dwelling houses in the east. It is the gecko that takes hold with her flat fingers, and odious as are her looks, dwells even in the palaces of kings.

The word rendered "ferret" in our version, is supposed to be a different name for this same animal, and on good grounds too, for in the Samaritan Pentateuch the Hebrew word is the same in both passages.

Hemidactylus coctœi.

အိမ်မြောင်း ဒုလ်း. ဒိလ့ၢ်၊ မိဉ်ဒ့လံး၊

SMALL-THUMBED GECKO.

A species not usually distinguished from the preceding, with small thumbs without nails, is also common here as well as in Bengal.

Hemidactylus frenatus	Schlegel.
" *lateralis,*	Gray.
" *quinquelineatus,*	"

*"Stellio manibus nititur, Et moratur in ædibus regis."

MERGUI GECKO.

Mr. Blyth had a gecko that Major Berdmore sent him from Mergui, which he designated *gecko verus* (triple-tailed.)

BERDMORE'S GECKO.

Major Berdmore, among the many rare specimens of our fauna that he collected at Mergui, sent Mr. Blyth a new species of gecko, which he named *Leiurus Berdmorei*. "It agrees," remarks Mr. Blyth, "with Gray's definition of LEIURUS, except that there is no appearance of the toes being webbed at base. Colour grey, with 4 longitudinal blackish streaks along the back and sides, 3 or 4 interrupted cross-bands of the same on the upper surface of the tail, a medial black streak on the nape, and others successively diverging on each side of it, and a black streak from before the eye continued to the shoulder. Some mottling also on the limbs. Hab."

CURIOUS GECKO.

"That curious gecko lizard," writes Mr. Blyth to Major Berdmore at Shway-gyen, "with flaps of membrane, is *Ptychozoon homolocephalus*. It is about half grown. We only previously possessed a large specimen which a tree snake was in the act of swallowing." Its toes are "webbed to the last compressed joint."

Ptychozoon homalocephalum,	Creveld, Wagler.
Lacerta homolocephala,	"
Gecko homolocephalus,	Tilesius.

MONITORS.

The monitor or varans, commonly, but erroneously called guanas by Europeans, are represented by several species, both terrestrial and aquatic.

MONITOR CROCODILE.

More than one hundred miles above tide-waters in the valley of the Tenasserim, the streams are inhabited by a large saurian, which the natives call a crocodile, of a different species from those that are found in tide-waters. The Burmese denominate it "the monitor-crocodile," and the Karens call it by the same name they do the crocodile, but it is probably a large species of varanus.

ဓာတိခေါင်း

MONITOR.

A large water varan or monitor, inhabits the head-waters of the Tenasserim river. I have seen individuals five or six feet long dash into the stream from the river's bank, and lash the waters with their powerful tails in great glee, their active movements contrasting strongly with the sluggish motions of the crocodiles.

This is probably the large varan that Major Berdmore sent from Mergui, and which proved to be

Varanus salvator,	Lauren.
Hydrosaurus "	Gray.
Lacerta mexicana,	Seba.

ဖွတ်ကျား။ ဖွတ်ကြီး ၀၂. တရူး

BENGAL VARAN.

One of our smallest aquatic varans, or monitors, about two feet long, I identified with a species found in the museum of the Asiatic Society in Calcutta, which was, if I recollect right, the Bengal varan. It is the most abundant species in the Provinces, and may be often seen in the interior along the borders of streams, watching for its prey on the overhanging branches of trees. The Karens, who are extravagantly fond of their flesh, steal up the trees with a noose at the end of a bamboo, and often noose them while leaping for the water, or catch them on the boat which is brought under the tree. The head of this species, the natives say, is venomous, and they discard it altogether; but the flesh of the other parts, which smells most odiously, is deemed by the Karens much preferable to fowls.

Varanus bengalensis.

ဖွတ်။ (ဖွတ်တောင်။ *Tavoy.*) (*Aracan.* ဖွတ်မွေး)
တခူးဗျူဝ်။ ခူးဖျူး. တရူး

The Karens at Tavoy say there is a variety with a red head.

ဖွတ်မိန်း ခူးဖျူးပိုးမိ. တခူးဗျူဝ်ပိုးမိန်း

TERRESTRIAL VARAN.

A monitor or varan, of a yellowish colour, the Karens call the yellow varan. The specimens I have seen are a little larger than the preceding, and it differs from it in be-

ing a terrestrial, and not an aquatic species. This is probably the species that Major Berdmore sent from Mergui.

Empagusia flavescens.
Varanus "
Monitor "

Varanus.

ဖွတ်။ ခူဃာ့ တခူးဘီ။ တခူးလိုးဖြိုက်။

BLACK VARAN.

According to the description of the natives, there is a distinct species of varan in the interior, which the Burmese call the black varan, but I have never seen it.

Varanus.

ဖွတ်ဝဲ။ စီးဃိုဉ်။ စီးဃာဉ်။

MAULMAIN VARAN.

There is a terrestrial varan at Maulmain, which the natives describe as distinct from the preceding.

Varanus.

ဖွတ်ညွှင်း။ ခူဃာ့ တခူးသွှင်။

ARRACAN VARAN.

A large species of varan from Arracan, Mr. Blyth said was

Varanus bicintatus.

ဖွတ်ကျား။

IGUANA TRIBE.

Of the family of the guanas, the principal members in the Provinces are called, by Europeans, chamelions.

BLOOD-SUCKER.

This is the tree-lizard with a gular pouch, that possesses the power in a slight degree of changing its colours, and has been regarded as chamelion. These lizards, of which there are several species, appear in very different costumes at different seasons, which has probably assisted them not a little to the name. Many of them are seen at the begining of the rains of a beautiful azure of various degrees of intensity, according to the excitement of the reptile; but at the commencement of the dry season they are of an uniform ash colour. The one I sent Mr. Blyth was CALOTES VERSI-

COLOR, Daudin. The most common and generally diffused species, inhabiting all India and Ceylon, from the base of the Himalaya southward, and (according to Mr. Gray) also China and Afghanistan. It is the only species we have in Lower Bengal, where it is excessively abundant, particularly in gardens. Sir A. Burnes sent a specimen from Sindh; and we have also one from Rangoon. In the last, however, the scales are somewhat smaller than in Indian specimens, and the two detached spines on the tympanic ridge are remarkably minute; but there is no other difference. Ceylon specimens, on the other hand, appear commonly to attain a greater size, with somewhat larger scales, the nuchal and dorsal crests and also the gular *fanon* being rather more developed (and they are then the supposed C. ROUXI *apud nos* of *J. A. S.* XXI, 354); but smaller and younger specimens from Ceylon are quite undistinguishable from Bengal examples; and it may even be that the latter sometimes attain the size and general development of the Ceylon reptile. In S. India, again, the changes of colouring (as described by Mr. Jerdon) differ from those of C. VERSICOLOR of Bengal, and are perhaps the same as in the Ceylon animal. Here the colours are changeable, but no yellow is ever seen; and in the months of May and June, the males chiefly are often observed with the head and anterior third of the body, inclusive also of the fore-limbs, tolerably bright red, a large black patch before the shoulder and all the rest plain greenish-brown. They are often altogether of the latter hue without markings; or the markings come out more or less strongly. The reptile is then commonly brown, lighter or darker, with a series of transverse dusky bands, broken on either side by a longitudinal whitish band which is evanescent, appearing and disappearing and sometimes shewing very conspicuously. A dusky streak through the eye, and three others radiating below and two above it. Three or four oblique streaks on each side of the throat; and others on the limbs. Females are smaller and darker, generally of the hue of the ground on which they lie.

ပုတ်သင်။

BLUE BLOOD-SUCKER.

Three other species of blood-sucker found in Burmah, *C. emma*, *C. rouxi* and *C. mystaceous*, "are distinguished by a pit or fold before the shoulder, which is lined with minute scales."

Mr. Blyth describes C. Rouxi thus:

Pit before the shoulder more developed than in C. MYSTACEUS, and partially black. Hind-toe reaching to the eye. A row of 3 or 4 raised spines above the tympanum; and nuchal crest moderate and gradually diminishing to the tail. The latter is tumid at base, and soon attenuates rather suddenly, the tumid portion exhibiting a median ridge of very broad keeled scales. Caudal scales towards the base of tail much larger than those of the body. Throat scales very broad and flat, with a median row of narrow compressed scales imparting the appearance of a small *fanon* or dewlap. A half-grown specimen (in spirit) is blue, with the tail reddish-brown to near its base, and marked with an irregular double series of *ocelli* which are white, having a black border. A few similar *ocelli* are seen bordering the low spinal crest. There is a black mark between the eye and the ear, and another below the eye; and a tinge of ruddy on the throat, about the tympanum, and on the occipital and tympanic spines. Adults (in spirit) have the body and limbs blue, the tumid base of tail green, and the rest of the tail dull red-brown, with *ocelli* less bright than in the young. Borders of lips black, continued as a broad black band (more or less variegated with ruddy white) to the shoulderpit. Throat whitish tinged with ruddy and strongly contrasting, as also a white band from the tympanum continued over and passing the shoulder pit. In some, the shoulder-pit is also posteriorly margined with a white mark; and raising the fore-leg, two or three additional white stripes are seen, oblique and successively more inclining to the horizontal. The limbs are also banded with white; but these markings are often indistinct or obsolete. Tumid base of tail bright orange underneath in some specimens.

Calotes rouxi.

ပုတ်သစ်။

GREEN BLOOD-SUCKER.

The green blood-sucker *C. mystaceus* is described by Mr. Blyth with "nuchal and dorsal crest diminishing gradually to base of tail; two separate groups of 3 or 4 spines each above each ear; lateral scales not much larger than the abdominal; a very distinct well marked *fanon* in adults; tail $\frac{2}{3}$ of the total length; longest hind-toe reaching to the ear; colour remarkable, green, with 4 or 5 large red

blotches on each side; the tip of upper lip, border of under lip, and nape, appear to have been blue in adults; and the border of the lower lip yellow, continued as a broad stripe to the shoulder; no radiating mark on the eye-lids."

ပုတ်သင်။ ခွံ့ထီ့. ခွံ့ဝိ။

ARMED BLOOD-SUCKER.

This is a dark green species, "orbital edge slightly angular, with a long spine at its posterior extremity, on each side of the nape of the neck, immediately above the ear, another long spine, surrounded with five or six shorter ones; on the neck a crest of eight to twelve long spines, surrounded with numerous smaller ones at the base; at a short interval the dorsal crest, the anterior five to six spines of which are very long, the rest rapidly decreasing towards the tail."

Acanthosaura armata.		
Lopayrus	"	Gray.
Agama	"	
Calotes tropidogaster.		Cuvier.

YELLOW SPOTTED BLOOD-SUCKER.

This is a species figured and described by Dr. Cantor from Rangoon. It may be one of the species noted by Mr. Blyth under another name.

Dilophyrus grandis.

FLYING LIZARD.

Two species of flying lizard inhabit the country, but they are rarely seen, and very imperfect fliers. I never saw them attempt to fly upwards.

Draco maculatus.		
"	*lineatus,*	Aracan.

SAND LIZARD.

On sandy plains, and other arid situations a sand-lizard may be often seen, which, on being approached takes refuge in its burrow in the earth. Their cavities are not deep, and the Karens, who regard them as a delicacy, frequently dislodge them.

It is a beautiful reptile, the body about six inches long, and the tail twice that length, remarkable for its powers of flight. It is of a grey colour, with shades of blue and green.

It has a longitudinal band on each side from the head to the tail, of a greenish colour, sometimes inclining to blue. A row of black spots with a greenish centre down the upper parts and a few similar ones each side the marks of the back, between that and the lines on the sides. The tail has four rows of similar points, and the sides of the body and legs are marked in a like manner, but the dots are larger. There are two long sharp teeth at the front of each jaw. It has five claws on each foot, and one on each hind foot is double the length of the others.

Leiolepsis Reevesii.

ပဒတ်။ ဆွံ့ယဲ့ ဆွံ့ဝဲယဲ့။

SCINK.

This smooth, snake-like reptile is sometimes called the grass-lizard, as it may be seen darting about in the grass. It frequently enters out-houses, but is rarely seen in the interior of dwellings. There is considerable variety of colouring in different individuals, from which the Karens distinguish three species. Mr. Blyth recognises four.

Euprepis rufescens,	Shaw.
Lacerta maritima maxima,	Seba.
Lacerta rufescens,	Shaw.
Scincus rufescens,	Merrem.
Scincus multifasciatus,	Kuhl.
Mabouya multifasciata,	Fitzinger.
Euprepis multifaciatus,	Wagler.
Tiliqua rufescens,	Gray.
Eumeces rufescens,	Wiegmann.
Tiliqua carinata,	Gray.
Tiliqua affinis,	"
Euprepis sebæ,	Dumeril et Bibron.

သင်းချော။ (သင်ကသာ။ *Tavoy.*)

ပုတ်သင်ချော။ သင်လိုက်။ ရှေ့ ဗျိုင်းပျုင်ဒီ။

BERDMORE'S ASPRIS.

This is an animal of the Scink tribe, discovered by Major Berdmore, which Mr. Blyth has named after the discoverer, *Aspris Berdmorei.* Colour dusky-brown or blackish, the throat and belly ruddy-white, with some cross-bands of the same upon the neck and body, broader and more distinct on the former, and white specks on the lips, chin,

and on the under and lateral surface of the tail. Eight distinct rows of keeled scales along the back. Length of specimen $4\frac{5}{8}$ in., of which the tail is $2\frac{3}{8}$ in., and head $\frac{9}{16}$ in.; fore-limbs $\frac{9}{16}$ in.; hind-limbs $\frac{13}{16}$ in.

The other scinks Mr. Blyth says, are

Tiliqua punctata.
" *Hardwickii.*
" *macularia.*

LIMBLESS LIZARD.

Mr. Blyth describes a remarkable limbless lizard procured from Rangoon as a new genus and species.

OPHISEP, nobis, *n. g.* Form anguine, of nearly uniform bulk throughout, tapering suddenly at the extremity of the tail; no exterior trace of limbs; and the vent placed in the middle of the entire length; the body above, and tail above and below, covered with parallel ranges of quadrilateral keeled scales, the throat and belly with hexagonal smooth scales, and the tapering extremity of the tail with imbricated and rounded scales. A groove on each side from shoulder to vent. Tongue obtusely forked: no palatal teeth; but a single row of small maxillary teeth: the triangular incision of the palate large. Eyes rather small, lacertine; the lids scaly. Tympanum small. Nostrils small, lateral. Head conical, somewhat compressed in front; the cleft of the mouth extending to beyond the eye. Rostral plate small, broad, triangular; it and the nasals and anterior labials surmounted by numerous small plates and larger representatives respectively of a posterior nasal and united fronti-nasals. Frontal shield large, heptagonal with posterior base; and the parietal inequilaterally pentangular, with anterior base. Fronti-parietals quadrangular. The streaks of the chin are sub-quadrangular and placed obliquely. Along the median ridge of the back the parallel ranges of scales alternate, but not upon the tail.

O. TESSELLATUS, nobis, *n. s.* Length of specimen $12\frac{1}{2}$ in., of which the tail measures $6\frac{1}{2}$ in. Colour pale dingy buff-yellow, paler below, with numerous plumbeous spots on the anterior half of the body above, composed of scales of that colour, some detached, others placed contiguously to form transverse bands more or less imperfect; all the scales being highly lustrous. There are 14 parallel ranges of them above, from lateral groove to groove, and 8 such ranges below.

POISONOUS SERPENTS.

Venomous serpents are quite numerous, both terrestrial and aquatic; yet during a twenty-five years' residence, only a single fatal case from the bite of a terrestrial serpent has come to my knowledge.

FIRE SERPENT.

The elaps is perhaps the "fire serpent" of the Karens, so called from the burning produced by its bite, which they say is poisonous, but not fatal. It is the smallest poisonous serpent in the Provinces. According to the Burmese it has a more wonderful power of reproducing itself than the hydra of antiquity. They say if one be killed, two or three others immediately arise in its place, and a Burman, who I believe, intended to speak the truth, assured me that he once killed one, and immediately he saw two others close by the dead one without being able to conjecture whence they came. Its Burman name signifies the "father of many." I have repeatedly had small innocuous serpents brought me for this fire-snake; but when I showed the natives that there were no poisonous fangs, and that no others appeared at the funeral of my specimens, they coolly replied that they were mistaken; they had not brought me the true reptile.

There would seem to be two species. One that Major Berdmore sent from Shwaygyen was *Elaps personata*, and of the other Mr. Blyth wrote: "The little venomous snake with black markings about the tail is *Elaps intestinalis* (vel *melanura*) which I never saw before excepting from the Malay countries."

Elaps melanurus,	Shaw.
Coluber "	"
Vipera trimaculata	Daudin.
Elaps trimaculatus,	Merrem.
မွေသားမျှာအဝ။	သာမိချောက်တောင်။
ဂူဘုဝီ၊ ခိ၊ ဝီ၊ခဲ့.	ဂုါ်မှဉ်။

YELLOW-BANDED BUNGARUS.

The bright belted bungarus, a poisonous serpent, with alternate black and yellow bands, is a splendid reptile, often seen in the vicinity of Maulmain. It grows six or eight feet long, and five or six inches in circumference. Its bite is usually deemed fatal, but I knew a Karen woman to be bit-

ten by one in the foot, and she recovered, though after much suffering. The tail terminates in a hard bony point, which the Karens think is a sting.

Bungarus faciatus,	Schneider.
Boa "	Shaw.
Pseudoboa "	Schneider.
Bungarus annularis,	Daudin, Schlegel.
Aspidoclonian "	

ငန်းတော်ကျား။ ငန်းကွက်။ ဖူထိုးထီ ဘီထိန်ဝှာ်.

WHITE-BANDED BUNGARUS.

A specimen of another species with white bifurcated bands was killed in Maulmain after making a gallant defence. All the species of this genus are furious snakes when their anger is aroused, and at certain seasons the natives say pursue their antagonists a long distance.

"This snake may be distinguished from one or two harmless ones that resemble it in colour by the scales under the tail being in one row, not double."

Bungarus candidus,	Linne.
" *cœruleus,*	Daudin.
" *semifasciatus,*	Kuhl, Schlegel.
Aspidoclanion semifasciatum,	Wagler.
Boa lineata,	Shaw.
Pseudo-boa cœrulea,	Schneider.
Coluber candidus,	Linne.

ငန်းဝါ။ ကျဘူ. ကွန်ဘီ.

RED-HEADED BUNGARUS.

A rare species of Bungarus with a red head and red tail is seen occasionally. The natives call it by the same name that they do the RED-NAPED TROPINONOTUS, but it may be distinguished by "the trunk being black with steel-blue reflections," while the body of the innocuous serpent is brick colour. The scales on the back too are hexagonal instead of "lanceolate ovate." The systematic name is "*bungarus flaviceps,*" the yellow headed bungarus, the species being originally described, probably from a specimen in spirits which had changed the red to yellow.

DUSKY HAMADRYAD.

The natives describe a venomous serpent that grows ten or twelve feet long, with a short, blunt head, a dilatable neck, thick trunk, and short tail. It is of a darker colour than

the common cobra, nearly black. I have never seen it, but the description given me accords so well with the generic characters of hamadryas," that it must be a species of that genus. "The hamadryas," says Dr. Cantor, "is very fierce, and is always ready not only to attack, but to pursue, when opposed;" this, too, is a conspicuous trait in our Tenasserim serpent.

An intelligent Burman told me that a friend of his one day stumbled upon a nest of these serpents, and immediately retreated, but the old female gave chase. The man fled with all speed over hill and dale, dingle and glade, and terror seemed to add wings to his flight, till reaching a small river he plunged in, hoping he had then escaped his fiery enemy, but lo! on reaching the opposite bank, up reared the furious hamadryad, its dilated eyes glistening with rage, ready to bury its fangs in his trembling body. In utter despair he bethought himself of his turban, and in a moment dashed it upon the serpent, which darted upon it like lightning, and for some moments wreaked its vengeance in furious bites; after which it returned quietly to its former haunts.

Hamadryas.

ငန်းပုတ်။ ဂူဘုဖျိ၂. ဂုဒ်သီဘျာဉ်။

BELTED HAMADRYAD.

In both Toungoo and Pegu is a species of hamadryad with black and whitish transverse bands. It is often seen twelve feet long, by a foot in circumference, and one of my informants tells me he has seen them nearly three fathoms long, and proportionately large. The Burmese and Karens have well established names for the species; and it must be, I think, Cantor's

Hamadryas ophiophagus,	Cantor.
Naja elaps,	Schlegel.
" *bungarus,*	"
" *vittata,*	Elliot.

ငန်းသံကွင်း။ ငန်းသံကွင်းစွတ်။ ဂုဒ်သီဘျီ။

TENASSERIM COBRA.

The Tenasserim cobra differs from the described species in the marking of the hood. In the common Indian species (*N. tripudans*) the hood is figured with "a double reversed horse-shoe line of black or brown, with the two ends dilated so as to inclose an oval space, in the centre of which is a ring or spot of black."

In the Tenasserim species there is only a single oval white ring, edged with black, in the centre of which is a ring or spot of olive-green, the general colour of the snake, but black on the margin. In other respects it does not differ from *N. tripudans*.

Cantor has described a species which he calls *N. larvata* —"Brownish, with numerous faint transverse stripes; the hood marked with a white ring, not unlike the form of a mask, behind which there are from three to five white rings;—the anterior part of the lower surface with alternate white and bluish-black rings." This cannot be our species, for it has none of the additional white rings behind the hood.

The incantation of serpents has usually been attributed to the power of music, and a late writer remarks that "it is so strange that many have denied the fact, while others have asserted it to be a deception." "Our own conviction," he adds, "is, that serpents are extremely sensitive of impressions from musical notes, or modulations, under the influence of which they wreathe their bodies from feelings of pleasure, while to these graceful contortions and undulating movements, the charmer, who plays on a pipe or some simple instrument, adapts the time."

This is the common theory,—that serpents are rendered docile by music. It must, however, be abandoned; for with many others, I have seen the cobra dance in imitation of its Burmese master, while he sat upon his haunches before it, making the motions with his body and hands that he wished the snake to imitate, and which it did perfectly, without any music whatever, or any other sound except an occasional authoritative *hay!* Again, a pair of cobras kept perfect time with their master, while no sounds were uttered, and allowed him to handle them as he wished. At his command they danced, and at his command they lay gracefully down as if asleep.

The Burmese usually put a wild one, which they secure when half or two thirds grown, with a practised tame one. These will dance and wreathe themselves at their master's pleasure. Sometimes darting at him, but at that moment he straightens himself up, with his eyes fastened upon the snake's eyes, and in a gruff voice commands them to perform. Following his motions, they stand almost upright, with their hoods dilated and their colours all in play as they dance, now swift—now slow—now approaching—now re-

ceding;—and I have seen the younger in his receding moments give unequivocal tokens of desiring to make his exit; but on hearing his master's call he turned again, though evidently with more reluctance than the old actress. The power of effecting all this is certainly attributable neither to magic nor music. It must, I think, be ascribed to fear, and to a very simple principle—the power of imitation; a power possessed by different animals in different degrees. Serpents are by no means the least docile of the animal kingdom; nor are cobras the most intractable of serpents.

Mr. Blyth had a specimen from Mergui "without a trace of spectacle marking on the body."

Naja lutescens,	Laurenti.
Coluber naja,	Linne.

မြွေဟောက်။ ရူဘူ. ရုၢ်သီ။

VIPER.

The natives describe a serpent whose poison they say is much more deadly than that of the cobra. It is very short and thick, and without a hood, say some, but others state that it can dilate its neck, though not to the extent that the cobra can. The description accords best with a species of viper, but I have never seen it. It is thought to be rare in these Provinces, though abundant in Burmah; and not uncommon in the neighbourhood of Martaban.

မြွေပွေး။ ရူဘံၢပွံ. ရုၢ်မိၢ်အိး။

GREEN VIPER.

This poisonous serpent may be readily distinguished from all the innocuous ones of a similar colour by the head being covered with scales and not with plates. The Karens describe two species, one with a red tail, and the other with a red line down each side, but Dr. Cantor regards them as varieties of the same species. They may be often seen in trees, and their colouring so much resembles the foliage that I have had my hand drawn back by a native when about to lay it on one that I was looking for among the branches, but with no intention of touching the reptile. They appear to bite more frequently than any other venomous terrestrial serpents in the Provinces, but although the limb that is bitten always swells up to a monstrous size, and much pain ensues, yet I never heard of a case proving fatal. The natives have a saying

to the effect that the part of the limb below the bite is destroyed, but this I very well know to be an error. After recovery, the limb, in the cases that have come to my knowledge, remained uninjured.

It is a popular idea that snakes have a fascinating power, but I have certainly seen this serpent fascinated by a light. It wound itself round a post and then extended its head towards a candle at which it gazed steadily for some ten minutes, and when considerable noise was made, it attempted no movement, but allowed the end of a bamboo, the only way by which it could be approached, to be thrust down upon it in front without making the slightest effort to escape.

Trigonocephalus gramineus,	Shaw.
" *viridis,*	Schlegel.
" *erothrurus,*	Cantor, (young.)
Colubar gramineus	Show.
Vipera viridis,	Daudin.
Trimeresurus viridis,	Lacepede.
Cophias viridis,	Merren.
Bothrops,	Wagler.

မြေစိန်း။ ရူဘွဲ့လာ-ရူဘွဲ့လဲာရုဏီး.

ရုဏ်သွဉ်လါ။-ရုဏ်ခွဉ်လါဝီးခံ။

VENOMOUS WATER SNAKE.

Poisonous water snakes abound in our estuaries and rivers, as far as tide-water ascends. Their bite has proved fatal in every case that has come under my observation, and that too in a very short period after the wound was inflicted. The Burmese, however, tell me that persons do sometimes recover, and that bites in the rains usually prove more fatal than in the dry season. They are exceedingly numerous. At the fishing stakes, near the mouths of rivers, where I have watched the fishermen at their labours, scarcely a draught of fish was drawn up without one or two of these serpents being among them. Mr. Blyth discriminates five species, but the Burmese call all *gyat.* One with a cylindrical body, the natives say never bites without producing death.

Hydrus, vel *Hydrophis.*

ကျွပ်လိုး။

FLAT HYDRUS.

Another pelagic serpent, the Burmese say, has a flat body, and its bite though poisonous, may be cured by medicine.

Laticauda scutata.
ကျတ်ဘျာ။

SLENDER SEA SNAKE.

In the delta of the Irrawaddy, a water snake departs and returns with the tide that is about two yards long, but not thicker than the thumb; and the anterior part of the body is much smaller than the posterior. It is said to coil itself around every object with which it comes in contact.

Hydrus gracilus, Shaw.
ရုပ်ပးကိုး။

INNOCUOUS SERPENTS.

Innocuous serpents are very numerous, from the diminutive blind worm that hides itself in its burrow, to the gigantic python that displays its coat of many colours in the tree tops, ready to dart upon any animal that seeks the shade.

BLIND WORM.

The blind worm, or slow worm, belonging to the class of burrowing serpents, is not uncommon, but I have seen it dug out of its hole in the earth as often as I have met with it on the surface. The popular idea of its being exceedingly poisonous, so common in England, is still more prevalant here, and the natives are much afraid of it. When they are shown its mouth, and its inability to do injury demonstrated, they turn to the pointed excresence on the tail, and express their confident belief that it has a sting there like the scorpion.

Mr. Blyth had a specimen which he characterised as *Argyrophis bicolor* (*Typhlops nigro-albus.*)

Dr. Cantor, who appears to have had a specimen from the Tenasserim Provinces, identifies it with *Typhlops braminus*, and gives the synonyms which will be found below; but our reptile differs from any description or figure that I have seen. The upper jaw projects, in a specimen before

me, the tenth of an inch beyond the lower, so that the mouth opens quite below the head. The eyes are beneath the skin, through which they are seen, and the scales have each a dark spot on them, so that the general appearance is that of lead coloured spots on a dull-white ground. Lacepede's figure of *Le Lombric* represents it the nearest of any figure I have seen, but there is a horny excrescence at the extremity of the tail, with a conspicuous sharp thorn, not seen in the figure. Dr. Cantor says that of a great number which he examined, the largest was not eight inches long; but a specimen before me measures more than twelve inches in length, and the body an inch and a quarter in circumference.

Typhlops braminus,	Daudin.
L'Orvet lombric,	Lacepede.
Anguis,	Russell.
Punctulated slow-worm,	Shaw.
Eryx braminus,	Daudin.
Typhlops rondoo talooloo,	Cuvier.
Tortrix russelii,	Merrem.
Typhlops "	Schlegel.
Argyrophis braminus,	Gray.

မြွေဆင်ဗျက်။ ဂူဆာ့ကလွဲ၊ ရုံထိုးကလဲ၊ သါမိချောက်တောင်။

PYTHON.

A large python, usually called a boa, is not uncommon. I have seen the head of one that was killed by a drove of hogs whose whole length measured eighteen feet, and the natives say they grow much larger. The Karens have an apothegm that the largest python can swallow a full grown buck-rusa or sambur deer, horns and all, without incovenience. They are often seen coiled up among the branches of trees, on the banks of streams in the interior, where they are frequently noosed by Karens, who regard them as valuable food. I have seen a Karen seize one nine feet long by the tail in the water, and with the aid of his associates succeed in capturing him.

According to a Karen legend, all the poisonous serpents derive their virulence from the python, which, though innocuous now, was originally the only one that was venomous. In those days he was perfectly white, but having seduced away a man's wife, aunt Eu, [Eve] he made her, while she was in his den, weave figures on his skin in the forms which are now seen. At that time, if he bit the foot-

step of a man in the road, such was the virulence of his poison that the man died, how far soever that man might have passed from the bitten track. The python had not, however, an occular demonstration of the fact, so he said to the crow: "Crow, go and see whether people die or not when I bite the foot-track." The crow went to the neighbourhood of a Karen cabin, and found the people, as is their custom at funerals, laughing, singing, dancing, jumping and beating drums. He therefore returned to the python and told him, that so far from his efforts producing death, on the contrary they produced joy. The python was so angry when he heard this, that he ascended a tree, and spit up all his venom; but other creeping things came and swallowed it, and people die of their malignancy to this day.

The python made them promise, however, not to bite without provocation. The cobra said: "If there be transgression so as to dazzle my eyes, to make my tears fall seven times in one day, I will bite." So said the tiger,* and others, and they were allowed to retain their poison. But the water-snake and frog said they would bite with or without cause, as they liked, so the python drove them into the water, where their poison melted away, and their bite became harmless. The tree, however, from which the python spit up his venom, became deadly, and its juice is used to this day for the purpose of poisoning arrows.

The gall bladder of the python is much sought after by natives for its medicinal virtues, which are in great repute. The natives say there are two or three species, but all that I have examined belong to one.

Ppthon reticulatus,	Schneider.
La jaune et bleue,	Lacepede.
L'oularsawa,	Bonnaterre.
Boa reticulata,	Schneider, apud Daudin.
" *rhombeata,*	" (?)
" *constrictor,*	Var. e Latreille.
" *phrygia,*	Shaw.
Python amethystinus,	Daudin.
" *des isles de la Sonde.*	Merrem.
" *schneiderii,*	"
Coluber javanensis,	Fleming.
Python javanicus,	Kuhl.
စပါကြီး	ဂူဆိုး. ကဆိုး

* The Karens suppose the bite of a tiger to be as virulent as a serpent's bite.

INNOCUOUS ESTUARY-SERPENT.

The Burmese describe a harmless snake, strongly resembling the venomous hydrus, and like that inhabiting the estuaries and tide-water streams. I have never seen it, but a Burman who had been bitten by one, said its bite was like the bite of a dog. He described it as about six feet long when full grown, and with a variegated skin.

Acrochordus javanicus.

ကုသားကောက်။ ကနကုပ်။

CALAMARIA.

This is a small innocuous serpent of the size and general appearance of the diminutive but poisonous elaps. Mr. Blyth describes a new species from Rangoon under the name of CALAMARIA OBSCURO-STRIATA.

Irredescent brown-black, the under-parts particularly lustrous; obscurely streaked throughout with a pale band occupying the adjoining portions of the fourth and fifth rows of scales on each side, a narrow pale line also along the middle of each of the first three rows, and three similar narrow pale lines along the back, all alternating with dusky lines. Thirteen rows of scales. Scutæ 153-163; scutellæ 40 pairs. Length of the larger of two specimens 11¼ in., of which tail 2 in.

PURPLE XENODON.

The genus XENODON is characterized "Head scarcely distinct, muzzle obtuse, trunk short robust, tail rather short, slow tapering; the last upper maxillary tooth longest." "The varieties of colouring of this snake"—XENODON PURPUR ASCENS—says Mr. Blyth, "are extraordinary." The Burmese variety "has the upper parts more or less dark, and variously freckled, often with imperfect semi-annuli placed near together, and alternately distinct and comparatively obscure: the under parts commonly spotless; and sometimes the collar quite black."

CARPET SNAKE.

A small harmless snake is common at Maulmain, with the head depressed, not very distinct, and "lighter or darker chestnut, with numerous white transversal bands on the sides forming a network composed of brown scales edged

with white." It is of the genus lycodon, but the natives to whom I have shown specimens are not united in the name appropriated to it, either in Burman, or Karen.

Lycodon aulicus,	Linne.
" *capucinus,*	Boie.
" *hebe,*	Schlegel.
" *atropurpureus,*	Cantor.
Coluber striatus,	Shaw ?

အိန်ကျွဏ်မြွေ။ ကြက်ဦးမြွေ။ ဂူဆာဒံ၂. ဂုဏ်ဆီဒံဉ်။

XENOPELTIS.

Two other harmless snakes sent by Major Berdmore from Shwaygyen belong to the genus *Xenopeltis.* One, "a shining black" species, is "the young of *X. unicolor* ;" the the other "with irredescent scales" is "*H. concolor.*"

STRIPED RAT SNAKE.

A species of coluber green-yellow on the back, with a broad black longitudinal band, interrupted at intervals, and a narrower one on each side, is often found where rats resort, on which it preys, and hence it is called a rat snake. One that dropt from the roof of my house into the dining-room, on being attacked by a cat, defended itself furiously, and came off victorious. I have seen them in the act of swallowing rats twice the circumference of their own bodies.

Coluber radiatus,	Schlegel.
" *quadrifaciatus,*	Cantor.

တောကြီးလင်း၊ လင်းမြွေ။ ဂူကို့လံ၂လီး.-ဂူကို့.
ဃီတိ၊ ဂုဏ်ကျဲ။

BROWN-GREEN RAT SNAKE.

Another snake, with the habits of the preceding, but destitute of its stripes, and brown-green on the back, is common throughout the Provinces.

Under certain circumstances the Burmans say the bite of this serpent is fatal. These are five: *gnan-soung, loo-soung, young-soung, lan-soung, ne-soung.** "Snake ob-

* ငန်းစောင်း။လူစောင်း၊ရောင်စောင်း။လမ်းစောင်း၊နေစောင်း။ထိုငါးပါးစုံလျှင်သေတတ်သည်။

lique, man oblique, turban oblique, road oblique, and sun oblique." That is, if the snake approaches a man with its head askance, as this snake is always said to do, and the man look at it askance, and if his turban be put askance, and he be moving on the road askance, and the sun be askance descending in the heavens; when these five circumstances meet, if the snake bite, which by the way is always very improbable, death will certainly ensue!

Coluber korros, Shaw.

ငွေးစောင်း ထောင်ခြေ။

BROWN RAT SNAKE.

Another species of *coluber* with a row of hexagonal scales on the back, has been found in both Malacca and Aracan, and is therefore found probably in the intervening countries.

Length 4 ft., of which tail 15½ in.; the latter remarkably slender. Colour brown, paler below; the anterior fourth of the body marked with transverse dusky bands, which become gradually more obscure till they disappear. Seventeen rows of slightly imbricated scales, the median row hexagonal. Vertical plate large, pentagonal, broad to the front. Two præ-orbitals, the lower small and bordered by the third and fourth labials; the fourth labial bordering the eye, which is of moderate size; two post-orbitals, and a third or infra-orbital bordering on the fourth, fifth, and sixth labials: nasals large, elongate, the nostril opening in the middle, near the outer border of the anterior frontal; a single small subtriangular frænal. Scutæ 195; scutellæ 144 pairs.

RIBBON SNAKE.

This tree snake, is grass-green all over from the head to the tail, excepting the under lips and throat, which are whitish, and a white line on each side which divides the upper from the under parts, or the scales from the scuta and scutella. The skin under the scales is black, alternating with light blue, and these colours play between the scales when the snake is struck. The head is long and attenuated, and the upper jaw, which is longer than the lower, is slightly recurved with a small snout of a curved plate. There are fifteen rows of imbricated rhomboidal scales on

the body, the rhomboidal form of the scales appearing most distinct on the tail.

Coluber nasutus,	Shaw.
Dryinus "	Bell.
" *persinus,*	Reinwardt.
Dryophis "	"
Tragops, "	Wagler.
Passerita, "	Grey.
Dryiphis prasina,	Schlegel.

မြွေစိန်းမြီရှည်။ မြွေစိန်း။ ဂုဏ်ချိုင်ပျံးလ။ ဂုဏ်ပိုလည်။

VARIEGATED TREE SNAKE.

A tree snake, with a cordate head much wider than the neck and body, is not uncommon. It is covered with brownish black spots, but may be best recognized by "a dark, black-edged, arrow-shaped mark" on the head, and a black oblique streak from the eyes to the nape of the neck."

Dipsas cynodon.

ရက်ကန်းကြိုးမြွေ။ ဂူချုံ၂ဖျံး၊ ဂုဏ်ချိုင်ပျံး

SPOTTED TREE SNAKE.

From Major Berdmore at Shwaygyen, Mr. Blyth had a "beautiful spotted snake, *Dipsas multimaculatus.*"

BRICK COLOURED TREE SNAKE.

Another species of *Dipsas,* from the same locality, was *Dipsas ferruginea.* All the species are variegated in their colouring, and the same species differs with age.

BROUSE TREE SNAKE.

Three species of *Leptophis* were collected by Major Berdmore at Mergui. One has the "head and body above brouse with strong golden reflections; skin between the scales of the anterior part of the body alternately ultramarine and black. From the muzzle to the root of the tail a black line, bordering above the silvery sides, which below are circumscribed by a second black line, commencing a little behind the head."

Another species has the "head above intensely black, with three or four distant transversal bands, and numerous irregular spots of gamboge or sulphur colour, all the scales with an oval gamboge spot; and from the hind head to the point of the tail a number of large vermillion spots."

The third species is reddish brown. Neck slender. Body much compressed. General aspect of colour reddish-brown, powdered over throughout, excepting on the chin and throat, with minute specks. A row of black spots along the spine. A brown central occipital stripe, and similar lateral stripe from nostril to ear. Seventeen rows of smooth scales. Scutæ 198; scutellæ 120.

Leptophis prasinus.
" *pictus.*
" *ornatus.*

AMBOYNA TREE SNAKE.

A tree snake was sent Mr. Blyth from the Tenasserim Provinces, of which he wrote: " this seems affined to *Dendrophis rhodopleuron*, Schlegel, from Amboyna. The nasal apertures are remarkably minute and abruptly pierced in the centre of the nasals. Vertical plate narrow."

Leptophis fescens, Gray.
Dipsas "

RED-NAPED TROPIDONOTUS.

Seven species of TROPIDONOTUS have been described from Burmah, but whether some of them are not varieties of the same species may admit of question. One of the most abundant from Mergui to Toungoo, which the Karens call the red-headed snake, has a greenish head, a red neck, with the skin between the scales deep blue, which appears only when the snake is struck, and a brick coloured back. I sent Mr. Blyth a specimen several years ago, but which he never described. More recently from Major Berdmore and Mr. Theobold's specimens he has created two or three new species, but owing to the colouring of the skin often changing, when put into alcohol it is not always easy to identify the snake from the description. Perhaps it is his " TR. NIGROCINCTUS. Colour olive-grey above, passing to bright green towards the head; and conspicuously marked throughout with a series of about 50 transverse black bands, some perfect, others broken and alternating—a broad pale collar, which was probably bright red in the living snake." Another species is TR. SUBMINIATUS. A most variable species, which may possibly be the Karen " red headed snake."

One 16 in. long has the upper-parts speckled over with black and bright yellow on a greenish ground, under-parts whitish

throughout. Head plumbeous above: a large black patch behind the occiput, surrounded except in front by orange-yellow border, behind which again the nape is bright vermillion, chiefly between the scales. A conspicuous black streak below the eye, and two black spots posteriorly towards the gape: scutæ 147; scutellæ 94 pairs. Another, rather larger, has the back almost plain dark plumbeous, paler and spotted with black towards the nape; lower-parts freckled with minute black speck, and increasingly so to the tail-tip: occiput and nape green, crossed with two orange bands, becoming redder posteriorly. All the upper labials with a black stripe, where each adjoins the next. Scutæ 157; scutellæ 66 pairs. A third, 29 in. long, has the upper-parts dark olive brown, with bright yellow spots on the skin between the scales; the lower dull pearly; nape green, followed by a vermillion space: a single broad black streak below the eye. Scutæ 155; scutellæ 83 pairs. The above three specimens are from Assam. Numerous others from Rungpore and Aracan, are mostly similar to the last, with generally a double black streak below the eye uniting beneath, rarely a single streak, and one large specimen has no streak below the eye: this would seem to disappear with age. Rows of scales 17, 19: scutæ 150, 166; scutellæ 60 to 90 pairs, but generally intermediate. Tail in all suddenly tapering. Largest specimen, which is much thicker than the others (denoting maturity), 3 ft., of which tail 8½ in.

Zebra Tropinonotus.

Mr. Blyth describes two new species.

Tropidonotus zebrinus, nobis, *n. s.* (Tr. chrysargos, Schlegel, var.?) Vertical plate twice as broad as the superciliary, and of same length. One præ-orbital and three post-orbitals. Upper-parts (in spirit) deep plumbeous, obscurely spotted with black; the sides and under parts yellowish-white, the former throughout banded with black, and each band having a whitish spot (probably yellow in the recent specimen) above it. Head plumbeous above, the labial plates with a triangular black spot at the point of junction of each of them above, and exhibiting thus two larger spots posterior and two smaller anterior to the eye. Two or three distinct black bands across the nape. Rows of scales 15: scutæ 137; scutellæ 96 pairs. Length of

specimen (which is quite young) 10⅜ in., of which the tail measures 8½ in. From Mergui. Capt. Berdmore.

TR. ANGUSTICEPS, nobis, *n. s.* Head narrow, not broader than the neck, little depressed, the eye much larger than in TR. UMBRATUS, and vertical shield broad. Colour (in spirit) plumbeous above, uniformly spotted with black throughout; below whitish, more or less variegated with black on the hinder half: head without markings; but a V-like mark on the nape with apex towards the occiput, becoming obsolete in adults. One specimen has 4 præ-orbital and 5 post-orbital plates; but in general these number 2 or 3 and 4: and the same specimen is remarkable for having no dark markings above, but some indistinct pale spots, probably of a vivid colour on the recent snake. In an adult the black spots on the upper-parts are almost confined to the skin between the scales, and there is no blackish colour on the hinder half underneath.

Inhabits Aracan.

BUFF-STRIPED TROPIDONOTUS.

This is a small aquatic snake, with black bars across the body, interrupted by a buff-coloured, longitudinal band on each side, common in the paddy fields at Toungoo.

Trapidonotus stolatus,	Linne.
Coluber "	"
Le chaygne,	Daubenton, Lacepede.
La vipere chaygne,	Latreille.
Coluber tæniolatus,	Daudin.
Natrix stolatus,	Merrem.

မြစ်ရှောမြွေ။ ဂူဖီး. ဂုဒ်ဟဗီး။

BLACK-STRIPED TROPIDONOTUS.

This is a darker colored species than the preceding, and has an obscure black line down each side. When attacked it distends its neck like a cobra, but to a less extent, and they are sometimes mistaken for cobras. Half a dozen natives who had seen an individual display this power, would not be convinced but the reptile was a cobra, although they saw the snake's mouth was destitute of fangs.

Tropidonotus schistosus,	Daudin.
" *mæstus,*	Cantor.
Coluber schistosus,	Daudin.
" *surseus,*	Cantor.

BLACK AND WHITE-SPOTTED TROPIDONOTUS.

A seventh species, TR. LUNCEUS, has "the neck and first fourth or fifth of the body of a vivid olive green, approaching to grass green, marked with a series of mesial black spots more or less distinct; the colour then passes to greyish, and is marked with two alternating lateral rows, one on either side of transversly elongated white spots."

INNOCUOUS WATER SNAKES.

Six species of innocuous water snakes have been found in the country and referred by Mr. Blyth to the genus *Homolopsis*.* All are called by the Burmese *yay-hmwey*, or water snakes, while the poisonous aquatic serpents are called *gyat*. It becomes an inexperienced observer, however, not to trust implicitly to the natives, for they often handle the venomous ones as carelessly as if they were harmless; and at other times they will stone an innocuous one as if its bite were fatal. One species is of a dark grey, or olive-green colour on the back, and white on the belly, with transversed black bands.

Homalopsis rhinchops,	Schneider.
Hydrus "	"
Boa moluroides,	"
Elaps boæformis,	"
Enhydrus rhynchops,	Latreille.
Hydrus cinereus,	Shaw.
Hurria schneideriana,	Daudin.
Coluber schneiderianus,	"
" *cerberus,*	"
Python rhynchops,	Merrem.
" *elapiformis,*	"
" *molurus,*	"
Coluber obtusatus,	Reinwardt.
Cerberus (Homalopsis obtusatus,)	Cuvier.
Homalopsis schneiderii,	Schlegel.
Cerberus cinereus,	Cantor.
ရေမြွေ။ ဂူဂၥဂီလွ.	ဂုၢ်ထးဂီၤ။

* *Erpeton,*	Lacepede.
Rhinopirus,	Merrem.
Pseuderyx,	Fitzinger.
Cerberus,	Cuvier.
Hypsirhina,	Wagler,
Hydrops,	"
Helicops,	"
Potamophis,	Cantor.

IRIDESCENT WATER-SNAKE.

An allied species is not rare, which is "iridescent dark greenish, or brownish olive above, the scales edged with black; in some, two parallel light grayish lines from between the eyes to the tip of the tail." It has the same native names as the preceding species.

Homalopsis enhydris,	Schneider.
Hydrus, "	"
Enhydris cærulea,	Latreille.
Hydrus atrocæruleus,	Shaw.
Coluber pythonissa,	Daudin.
Hypsirhina,	Wagler.
Potamophis lushingtonii,	Cantor.
Homalopsis aer.	Schlegel.
" *olivaceus*,	Cantor.

VIPER LIKE WATER-SNAKE.

Mr. Blyth describes a new species as:

HOMOLOPSIS SEMIZONATA, nobis. This remarkably fine species has not a little the aspect of a viper, from the small size of its scales, the subdivision of its head-plates, and the general colouring. Form moderately thick; the body with 39 rows of small strongly carinated scales. Vertical plate transversely divided into two; the anterior portion triangular, with apex to the front; the posterior semi-circular: and behind the latter is a remarkable range of five small plates, the medial being elongated backward between the occipitals, and posterior to this again is a minute inter-occipital: occipitals curiously scalloped, each with three incisions; one posterior, one exterior, and one interior: two pairs of frontals; a frænal; and a post-nasal. Colour pale yellowish-brown, marked on the upper parts with about 36 semi-annuli, which are of a blackish hue on the edges, paler within: on the hinder part of the body and tail are some black spots on the pale inter-spaces: and a medial black streak from the occiput is continued to the second transverse semi-annulus: a triangular black spot on the snout; also a blackish eye-streak; and small spots on each occipital: lower parts with two irregular rows of dark spots from throat to vent, bordering the scutæ; and the sub-caudal scutellæ are marked throughout with black. Number of scutæ, 168; scutellæ, 78 pairs. Length of specimen 27 in., of which tail 6 in. It is remarkable that the abdominal

scutæ begin to divide obliquely as they approach the vent, the last two or three assuming the appearance of pairs of scutellæ."

Three other species of *Homolopsis*, Mr. Blyth referred to

Homalopsis plumbea.
" *leucobalia (H. Hardwickii.)*
" *hydrina.*

FROG TRIBE.

The Karens have distinctive names for fourteen different species of frogs, and Mr. Blyth recognizes thirteen.

TIGER FROG.

The tiger, or golden frog, is one of the largest of the tribe, and is found from Mergui to Toungoo.

Rana tigrina,	Daudin.
" *mugiens,*	Latreille.
La grenouille taureau,	Cuvier.
Rana limnocharis,	Boie, MS.
" *cancrivora,*	Gravenhorst.
" *picta,*	"
" *brama,*	Lesson.
" *rugulosa,*	Weigmann.
" *vittigera,*	"

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OLIVE-GREY FROG.

This is a new species from the Tenasserim provinces, and as large as the preceding.

Rana fusca, Blyth.

Another species of the same genus that Major Bermore sent Mr. Blyth, is

Rana assimilis.

A third from Pegu Mr. Blyth described as

Rana altilabris, Blyth.

TREE FROG.

Of a tree frog that I sent Mr. Blyth, he wrote: "The tree frog is a species of *Poly-pedatus*, which I have previously received from Aracan and Assam." Probably,

Polypedates leucomystyax.

MERGUI TREE FROG.

Mr. Blyth described a new species of tree frog received from Major Berdmore at Mergui.

Polypedates lividus, Blyth.

BENGAL TREE FROG.

Another species of tree frog that I sent Mr. Blyth from Maulmain, was

Hyla bengalensis.

From Mergui Mr. Blyth had

Lymnodytes erythræus, Schel.
" *nigrovittatus.*

The last species and the two following were sent him from Pegu.

Engyotoma interlineatum, Blyth.
" *carnaticum.*

BERDMORE'S FROG.

Major Berdmore found a new frog at Shwaygyen, which Mr. Blyth, dedicating to the discoverer, wrote:

ENGYSTOMA (?) BERDMOREI, nobis, *n. s.* This is not a true ENGYSTOMA; but we have no means of referring it to its proper genus. The fore-limbs are small and slender,—the hind enormously developed, with fully webbed toes: head small, and no external tympanic membrane. Length $1\frac{1}{2}$ in., of fore-limb $\frac{15}{16}$ in., and of hind-limb $2\frac{7}{8}$ in.; the foot $1\frac{1}{4}$ in. Colour dusky above and on the throat; rest of lower-parts reddish-white: some black spots on the sides, and interrupted bands on the limbs. In young individuals, a dusky bottle-like mark appears on the upper-parts, with the neck of the bottle extending from between the eyes to between the shoulders: in adults this becomes inconspicuous, but is distinctly traceable.

TOAD.

A large toad which I have seen the Burmese doctors bringing into town, bound hand and foot, "for medicine," is not uncommon.

Bufo melanostictus, Schneider.
" *bengalensis,* Daudin.
" *scaber,* Latreille.
" *dubia,* Shaw.
" *carinatus,* Gray.

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Entomology.

With the exception of the beetles, Burmah presents an untrodden field to the entomologist. A few insects have been collected, but none, with a solitary exception, have been described or noticed in any work to which I have access. Still they form by no means the least important portion of our natural productions. The lac insect, the blister fly, the honey bee, and the silk moth, are important for their utility—the green beetles, the fire flies, and the butterflies, for their beauty—the white ants, the blights, and the caterpillars, for their predatory habits; and the gnats, the mosquitoes, the gad-flies, the ticks, the bugs, the fleas, the scorpions, and centipedes, for their annoyances to man.

BEETLES.

Beetles are very numerous both individuals and species. We have tiger beetles, ground beetles, bombardier beetles, whirling water beetles, mimic beetles, stug beetles, scareb beetles, atlas beetles, chaffer beetles, sexton beetles, rove beetles, scavenger beetles, chameleon green beetles, click beetles, glowworms, fire-flies, floral beetles, blister flies, scale-like beetles, long-snouted beetles, capricorn beetles, tortoise beetles, and lady-bird beetles.

Capt. L. Smith, H. M. 69th, has recently collected specimens of nearly three hundred species in Toungoo, and many of the following brief description are made from insects in his valuable collection.

TIGER BEETLES.

Beetles are common with toothed mandibles, larger than the thorax, with ferocious habits, which have earned for

them the name of tiger beetles. A short time ago I observed one leap on a cockroach four times its own size and weight, like a lion upon an elephant.

Capt. Smith has four species in his collection. One has copper and green reflections on the neck, with dark brown wing covers marked with yellow stripes.

Another species has a brouse thorax with whitish hairs, while the light brown wing covers have black and white spots, and are margined by a yellow streak.

A third species is all green with the exception of four yellow spots on the elytra, and a streak of the same colour around the apex of the elytra.

Cincindelidæ.

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GROUND BEETLES.

The ground beetles form a large family, of which some three thousand species are known. They are strongly built, being adapted to creep under stones where they are often found, as well as under the bark of trees. "They are at once distinguished from tiger beetles by the maxillæ terminating in a simple point without any articulation at the tip."

Capt. Smith has collected thirty-four species of this tribe in Toungoo. One species is two inches in length, and has white eyes; another, half the size, has jet black eyes, thorax as wide as long, and the wing covers are striated.

A third species has a deep green heart-shaped neck, with striated purple wing covers; while a fourth has a reddish thorax with green elytra; and a fifth has the wing covers deep blue. Many of the species are small and of gaudy colours.

Carabidæ.

BOMBARDIER BEETLE.

The bombardier beetle derives its name from the explosion it makes when attacked, like a cannon in miniature. A short time ago, I seized one in my fingers, when it immediately made two or three rapidly succeeding discharges, accompanied both with smoke and a slight sound. The æriform vapour discharged blackened my fingers like a strong acid, and remained for three or four days.

Capt. Smith has three species. One is yellowish with four black spots on the back, black mandibles and yellowish legs.

Another has a black body, with four yellowish spots on the wing covers, head yellow with a black spot, and legs yellow.

A third species has a green neck, a black body, and a yellowish spot on each wing cover. The bombardier beetles form a sub-family of the ground beetles, and are distinguished by " having the head and thorax narrower than the abdomen.

Brachinides.

WHIRLING WATER BEETLE.

On the margin of every little stream in the interior, small whirling water beetles may be seen in large parties, engaged in unwearied dances over the surface of the water.

Gyrinidæ.

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DIVING BEETLE.

A water beetle, so remarkable for its power of diving that naturalists have named it the diver, is not uncommon in our fresh-water streams. Its larvæ which I have met with, is a large grub, with a pair of powerful jaws.

Dyiiscus.

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LARGE WATER BEETLE.

Capt. Smith has one species of *Hydrous*, or *Hydrophilus*, in his collection, a tribe that contains the largest of the water beetles, and some of which carry their eggs in a cocoon under the abdomen, like the running spiders.

Hydrophilidæ.

SEXTON BEETLES.

The sexton beetles derive their name from their habit of preying on, and living in dead bodies. Capt. Smith has sixteen species collected in Toungoo.

One is of a dark lead colour, resembling the burying beetle of England. Another of a changeable purple hue, and striated. A third has four yellow spots on a dark ground, and a fourth, has two yellow transverse bands.

Necrophaga.

ROVE BEETLES.

The *Brachelytra*, or *Microptera*, are easily recognized by the wing cases being shorter than the abdomen. They are called rove beetles in England, but they might be more appropriately named scavenger beetles, for they live on decaying vegetable and animal matter. Capt. Smith has two species, one of which is of a dark colour, resembling *Staphylinus erythrus*, but is a different species.

Brachelytra, or *Staphylinidæ*.

MIMIC BEETLE.

I have observed a small glossy black beetle, which, when touched, draws up its limbs and counterfeits death to admiration. Its antennæ are clubbed at the end, its thorax deeply emarginate in front, and joined to the wing-cases without a scutellum; the elytra are striated and shorter than the abdomen; the abdomen is composed of seven segments, and the feet are not at their bases equidistant, the first pair being nearer together at their bases than the last two pairs. It is, therefore, I judge, a species of the hister family.

Histeridæ.

STAG BEETLE.

A stag beetle two inches in length, with deeply toothed mandibles more than half an inch long, is occasionally met with. Its large eyes are divided by the acute margin of the head, and there are two immense spines on each side of the thorax, supposed by some to be used in piercing and lacerating leaves and twigs, thus causing a flow of sap upon which the insect feeds. Another species which is more rare, has mandibles nearly as long as the whole body.

Lucanidæ.

EYE BEETLE.

During the hottest part of the season at Tavoy, the pedestrian is often met in his evening walks by a small insect that flies directly into his eye, like a moth to the candle. The effect is to blind the person for the instant, and after the insect has been extracted, its effects are frequently felt in an inflamed state of the eye for two or three days, and sometimes several weeks elapse ere the wound is entirely healed. On examining a specimen that was taken from my eye, I was surprised to find it a minute beetle, the smallest

I ever saw. Its claws and spiny shanks are evidently the instruments with which it inflicts the pain.

Petalyocera.

SCARAB BEETLE.

A brown black beetle about two inches long is very common, which resembles the insect so frequently found embalmed with Egyptian mummies, and depicted on Egyptian monuments. The clypeus is not, however, notched, nor is it a pellet roller. It selects for is burrow a bed of ordure, which it excavates two or three feet deep, and at the end of the passage forms a chamber of several inches in diameter. It resembles,

Scarabæus stercoraius.
Geotrupes "

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ATEUCHUS.

Capt. Smith has two other species of *Ateuchus*, or hornless scarabs, one of which abounds in Toungoo and not infrequently flies into houses at evening, attracted by the lights.

Ateuchus.

ALTAS BEETLE.

This, one of the most remarkable of beetles, is occasionally seen, though not often. It has horns on the head nearly two inches long, armed with serratures on the inner side, two other horns curving towards each other stand on each side of the thorax, and a short one immediately over the head.

Scarabæus atlas, Dejean.
" *hector.*

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SMOOTH HORNED ATLAS BEETLE.

Another species of atlas beetle that I have seen in Tavoy, differs from the preceding, in the horn on the head being destitute of serratures. It has a ridge down each interior margin, and one down the centre, but they are all smooth; and the horn makes a shorter curve. In the specimen before me, the horn measures from the eye to the lip, following the curve, one inch and three quarters.

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SHORT HORNED ATLAS BEETLE.

One or more species of dynastes, with a short thick horn on the head, and four small protuberances on the thorax, resembling the preceding but much smaller, are not very uncommon at Tavoy. The female of this species is destitute of horns, which is probably the case with the preceding species, but I am not acquainted with the females.

Dynastes.

ကြီချေးဝိုး။ ဆွံဆၢဒိၢ. စွံၤတၤဒိၣ်ခိၣ်။

HORNED SCARAB.

A large beetle of the genus scarabæus as defined by Duncan, nearly related to the American *S. tityus*, is not uncommon. The female is destitute of horns, but the male has a large horn on the head, curved back, and bifid at the extremity, with two spreading points, and another of nearly equal length, also bifid at the point, projecting from the thorax curved downwards, and nearly meeting the one on the head. There are no other horns on the thorax, in which it differs from the American species. It is of a uniform dark-brown colour approaching black. The Karens say it devours the young shoots of trees, in which it certainly resides.

Scarabæus.

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ONTHOPHAGUS.

Capt. Smith has eleven species of horn-less scarabs that he refers to this genus.

Onthophagus.

PHANAEUS.

This is an insect of the scarab family distinguished from its allies by its antennae. Capt. Smith has found two species in Toungoo.

Phanæus.

COCKCHAFFER.

Beetles of which the common cockchaffer of England is the type, are numerous, and are often very destructive to the foliage of young trees. On one occasion I found the young leaves of a *Lagerstræmia indica* half devoured every morning, and yet I could not discover a single insect on

it through the day, but on visiting it with a light late at night, I found dozens of a small beetle of this tribe devouring the leaves with great avidity.

Melonthidæ.

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ROSE CHAFFER.

A rose chaffer of light brilliant hues inhabits every rose-blooming garden, where it revels in the very heart of the opening blossom, often burying itself in the centre of the bud, where it eats off the bases of the petals, so that when the blossom expands the petals immediately drop off and despoil the flower.

Cetonia.

GREEN ROSE CHAFFER.

A species of rose chaffer is occasionally seen that rivals in its colouring the buprestis tribe, from which it may be easily distinguished by the wing-covers being much shorter than the body. The under parts are of a copper bronze colour with green reflections, and the upper parts are of a uniform grass-green with blue reflections.

Centoniidæ.

FLORAL BEETLES.

Capt. Smith found eight other species of floral beetles in Toungoo. One is a large species, an inch and a half long, with elytra carried over the shoulders, and of a uniformly dark green colour. Another equally large, is of an ash colour. One has the elytra straight, and is light green; another is dark brown, and small. Two other small species are of a uniform copper colour. One has a green thorax with dark brown elytra; and another is dark brown sprinkled with yellow hairs; while still another is of a beautiful asparagus green studded with buff spots.

Cetonia.

GYMNETIS.

Among Capt. Smith's floral beetles, are two species of *gymnetis*, a genus distinguished from *Cetonia* "by having the thorax produced in the middle behind into an angle which occupies the place of the scutellum." One of the Toungoo species has a black velvety head, two yellow spots on the thorax, and two broad yellow patches on the elytra.

The other has a copper green head, thorax and anal extremity edged with yellow, wing covers dark brown and striated. Both species were found on custard apple trees.

Gymnetis.

LARGE SCUTELLUM BEETLE.

One tribe of floral beetles, is characterized by having a scutellum at least as large as one-third of the elytra. Capt. Smith has twenty-five species in his collection. One is of a dark green colour, and another dull brown with finely striated elytra. Both were found on mango trees.

Macraspis.

CHAMELEON BEETLE.

> _____ "Some proudly shone
> Like living jewels, _____
> These lived deliciously on honey dews,
> And dwelt in palaces of blossomed dells."

We may indeed suppose the brilliant creations of gay-coloured beetles to make their palaces in blossomed dells, and draw their own celestial hues from the "rosy lips of flowers." This changeable beetle is a species of buprestis, an elegant insect, with one uniform hue of variable copper and green, burnished with transparent golden bronze.

The elytra, or wing-cases of these "living jewels" are in great demand by the Sgau Karen maidens for necklaces, and chaplets, and wreathed with a few wild flowers around their ebon locks, they have really an appearance of elegance.

The thorax is remarkably convex, and the surface is covered with small deep circles, or dots. There is a small tooth at the extremity of each elytra, and another on the margin a short distance removed from the extremity. The breast is produced into a strong spine, and the wing-covers are finely graved with minute convex points, all which are characteristic of *Buprestis sternicornis*, but it wants the "numerous rounded impressions, variable in size, which are filled with ash-coloured scales" attributed to that species. Symes says, the Kyens adorn themselves with the elytra of *B. ignita.* "There are probably not fewer," remarks Westwood, "than 1500 species" of this elegant genus, and they belong mostly to tropical, and subtropical regions.

Buprestis.

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CRIMSON AND GREEN BEETLE.

There is a still more brilliant and larger species of buprestis, which the Karens call the male of the preceding. The under parts are copper bronze with green reflections, while the upper parts are bright grass-green, throwing out under different lights, blue, yellow, and golden reflections. A bright crimson band runs down each wing-cover parallel with the margin, and distant from it a little more than its own breadth, gracefully turning down at the shoulder and up at the extremity. The base of the thorax has a large spot of the same crimson colour of a triangular form, excepting that on the margin it is about the eighth of an inch wide. The thorax, and wing-covers are enchased with minute points, and with about a dozen fine teeth on the margin of each of the elytra. There is no spine on the sternum, and the "head has a deep groove down the middle, and the greater part is occupied by the eyes, which are of a deep chestnut colour." It is a species nearly related to *B. bicolor* in its general form, but is a very distinct species, to which I can find no reference in my books. It is not in the fifty species described by Boitard, although he ostensibly described "desespeces exotiques les plus remarkquables." This species also is sought for by Karen belles for the wing-cases, used liked the preceding in making their toilets.

Madamė Merriam represented the larvæ of *B. gigantea* as a grub found under ground, feeding on roots, but Westwood says: "As it is, however, so different from the larvæ of the buprestidæ, and as in all probability, the transformations are undergone in wood, the trunks of trees, &c., I fear that the authoress must have fallen into some error." It falls to my lot to come to the aid of the lady, for the natives assure me that the transformations of these species of buprestis are undergone in the earth, and that the larvæ form the papory cases, with which I have often met.

Buprestis.

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SMALL GREEN BEETLE.

A smaller green species of buprestis, with less brilliant iridescence, is also common.

Buprestis.

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BLUE BUPRESTIS BEETLE.

A small beetle of a fine blue colour is sometimes seen, which belongs to this genus.

Buprestis.

TOUNGOO BUPRESTIDÆ.

Capt. Smith has collected nine species of the Buprestis family in Toungoo, some of which are small, but all of brilliant colours.

Buprestidæ.

CLICK BEETLE.

Among the numerous insects that fly on to the tea table in a sultry evening, may be usually seen one or more species of that curious beetle which, on being laid on his back, suddenly turns himself over with a spring and a clicking sound, which has earned for it from Europeans the name of snapping-beetle, skip-jack, spring-beetle, and blacksmith; and from the Karens, "the nodder." Capt. Smith has collected ten species of the tribe.

Elateridæ.

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GLOW-WORM.

I have often gathered the female of a species of glow-worm in my garden at Tavoy, that bears a strong resemblance to the English glow-worm, and which shuts its lamp at pleasure, a power not possessed by the fire-fly. It is a singular fact, that while the male glow-worm is decorated with wings, and can soar up at pleasure, his mate is a wingless worm, doomed for ever to crawl upon the earth.

Lampyridæ.

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ဝံမုၢ်ဗိၤဝွဃ။ ဝံမုၢ်ဗိၤဘုလၣ်။

FIRE-FLY.

The fire-fly which is seen in such innumerable multitudes all over the Provinces is also a species of glow-worm, in which both sexes are winged. Our fire-flies are occasionally, but erroneously referred to the elater, or click-beetle tribe, the fire-flies of some countries belonging to that family; but those emit their light from the thorax, while ours ra-

diate their effulgence from the last segment of the abdomen. According to the Budhists, fire-flies were produced by the element of fire.

The fire-flies appear to sip the nectar of flowers, and to be very choice in their selection. In the mangrove swamps, and on the coast where ægiceras grows, that tree, while in flower will seem to be burning with their radiance, while all is dark around. In other situations, I have observed the flowers of a wild species of coix covered with them, to the exclusion of all the other plants in the neighbourhood. Capt. Smith has three species in his collection, one of which resembles the European, but the elytra are bound around with yellow.

Lampyridæ.

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LYCUS.

The genus *Lycus* is not numerous, but it is related to the fire flies in its general form, from which it differs by having "the head produced into a deflected rostrum." Capt. Smith found two species in Toungoo.

Lycus.

AZURE-WINGED FLORAL BEETLE.

A small beetle, with beautiful metalic blue wing-cases with deep green reflections, a narrow orange thorax, and a small black head, is frequently seen on flowers. The cajuput oil tree when in bloom appeared to be the head quarters of this insect in my garden. While every other blossom was left quite free from them, these trees were radiant with their burnished mail.

Cleridæ.

AUGER BEETLE.

There is a small black beetle in this country, which, with its larvæ is exceedingly destructive to bamboos. Their ravages are dependent upon the season of the year in which the bamboos are felled. In the course of one rains they will sometimes utterly destroy a dwelling, the bamboos of which had been felled in the preceding dry season, while others that had been felled about the close of the rains, I have known to stand unharmed by insects for seven years.

Bostrichidæ ?

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BLISTER FLY.

A species of blister fly is not uncommon, and its vesicatory power is well known to the Karens, who say it shows a partiality for the papilionaceous flowers of one or two plants of the bean tribe.

Cantharidæ (Mylabris ?)

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HORIA.

This is a tribe related to the blister flies, of which Capt. Smith has two species in his Toungoo collection. One has a heart-shaped black thorax, the wing covers orange with three black bands; and is an inch and a half long. The other is light yellow with black bands, and is about an inch long.

Horiidæ.

SCALE-LIKE BEETLE.

Some evenings during the dry season, the table will be covered with a curious flattened insect resembling the scale of a fish. It is of a grey colour like the bark of a tree, and the margins of the wing-covers and the thorax are "extended into a flattened shield all around the body." One individual, that I recently examined, had on its under side more than twenty small lice, parasites.

Cossyphus.

LONG-SNOUTED BEETLE.

This country seems to be the rendezvous of weevils, or beetles with long snouts. Many are of large size, and of very curious forms. Capt Smith has collected forty-three species in Toungoo.

Curculionidæ.

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SHORT-NECKED WEEVIL.

One genus has "the head inserted into the thorax as far as the eyes." The Toungoo species is small, black with a white stripe down the back.

Rhynchites.

FINE-ANTENNÆ WEEVIL.

Another genus of weevils is remarkable for a long neck in a long necked tribe, and for its filiform antennæ. The species found at Toungoo has a brown body with a yellowish head, and is seen on palmyra trees.

Brentus.

CAMELEOPARD WEEVIL.

One species of *Apoderus*, "distinguished by the length of the neck, which is united to the thorax by a kind of rotula," is yellow with bronze spots, and suggests the form of the cameleopard.

Apoderus.

LONG-FORE-LEGGED WEEVIL.

One tribe of weevils are distinguished by their long fore legs. Capt. Smith has collected ten species of the genus in Toungoo. All are small. One is green with yellow markings, some are of a metalic lustre, others have sombre hues.

Rhina.

HAMMER-HEADED WEEVIL.

A small species of *Rhina* with hammer headed antennæ, is of a dark colour, wing cases striated; and appears to be a nondescript.

Rhina.

ELBOW-ANTENNÆ WEEVIL.

Still another tribe is characterised by the antennæ being distinctly elbowed, and the larger portion of the weevils belong to this family. Thirty species are in Capt. Smith's Toungoo collection. One half an inch long resembles frosted silver; another is of an ash colour with a long curved proboscis.

Curculioninæ.

MANGO WEEVIL.

A small brown weevil of the curculi tribe makes great havoc among the mangoes on this coast. The perfect insect, sometimes two of them, may be often seen walking out of a mango that has been unsuspectingly dissevered.

Curculionidæ.

PALM WEEVIL.

The palm weevil belongs to the fifth division of the weevils, and is quite a large insect. The thorax is of a chocolate colour with eight black spots on the male, and six on the female. The wing covers are striated, some with chocolate markings, while other varieties are all black. The larva is an odious looking grub which is eaten by the Burmese and esteemed by them a great luxury; as was the cossis of Pliny by the Romans.

Calandra.

BAMBOO WEEVIL.

There is a bamboo weevil on the mountains of Toungoo, which bears a strong resemblance to the palm weevil described above. It is a little larger and rounder, and the thorax, with the same colouring, has a single black spot on the centre. Like the palm weevil, some individuals are all black. It is an inch and a half long.

Calandra.

SMALL PALM WEEVIL.

Capt Smith has a small palm weevil in his collection, of an ash colour and is punctured all over.

Calandra.

CAPRICORN BEETLE.

A large capricorn beetle often flies into the houses at Maulmain, which is more than two inches long, with antennæ upwards of three inches in length, each consisting of ten joints, coated with sharp thorns. There is a large thorn on each side of the thorax, and another, not quite so large, on each shoulder, on the corners of the wing-covers; which are embossed for about a sixth of their length with minute black tubercles, or thorns, and they have a spine at the apex of each. In form, and general appearance, it resembles *Hammaticherus marmoratus*, but it has not the variegated coloring of that species. The brown wing-covers, with a spine to the apex of each, assimilate it to *Prionus corticinus*, from which, however, it differs in others respects.

Longicornes.

ကူးကွန်း-ဒီးဒံး. ဝင်အာင်အံး

SCULPTURED CAPRICORN BEETLE.

A small capricorn beetle about an inch long, with elegant chased lines on the wing-covers, is not uncommon. There are four spines on the thorax, one on each corner, and the antennæ, which are shorter than the body, are very slightly serrated. It is of a reddish brown colour, and dissimilar to any species that I can find described.

Prionidæ.

SAW BEETLES.

Capt. Smith has twenty nine species of Capricorn or Longicorne beetles in his Toungoo collection, of which three belong to the genus *Prionus*, or saw, so named from their serrated antennæ resembling a saw. One is a very large black species, three and a half inches long, with powerful mandibles, and the head bent down. Another is of a reddish brown colour, two inches and a half long.

Prionus.

ONE THORNED LONGICORNE.

Four species are characterised by having a single thorn to the thorax. One is a large buff colored or yellowish insect, with two red spots on the thorax, and three on each elytra. Another resembles *Lamia subocellata*, but has two obscure red spots on the thorax, and ten in two rows on the elytra. It is an inch and a half long.

A third species has a yellow thorax with a black cross, front of head yellow, body black with round dark yellow spots; and the fourth has ash colored wing cases with black and white spots, two white patches in the centre. The antennæ are yellow with black bands.

Lamia.

MUSK BEETLE.

Twenty-three species of the *Longicomes* belong to the musk beetles or *cerambycidæ*, many of them emiting an odour resembling attar of roses. One species is green with bright orange bands; another has the thorax and elytra grass green with a band of yellow across the latter. A third is deep purple with bands of light orange on the wing covers; and a fourth is uniform yellow with the tips of the antennæ purple. Two other species resemble the above, but one is all purple, and the other has one half of its wing covers purple. One species is of a primrose colour, the thorax yellow with a black spot in the middle, and the elytra terminate in two thorns; another has a yellow body edged with light green, another is dark blue, another ash colour and another bronze. Altogether they form a very gaudy assemblage.

Cerambycidæ.

LARGE THIGHED BEETLE.

Capt. Smith has four species of the curious genus *Sagra*, in which the hinder thighs are remarkably thick. The books say they are "confined to Africa, Ceylon, and China." One species has buff dots on a dark ground, another is dark green, a third light green, and the fourth is deep blue.

Sagra.

TORTOISE BEETLES.

Sixty-one species of tortoise beetles are seen in Capt. Smith's Toungoo collection, many of which are very handsome. Nine belong to the genus *cassida*. One resembles *C. micans*, but has four square dots at the angles; another resembles the above, but has ten black dots on the body; a third has a variegated shell with eleven dots; and a fourth has dark markings sprinkled with sharp spines.

Cassida.

ALURNUS.

The tortoise beetles with antennæ of equal thickness throughout belong to the genus *Alurnus*. Capt. Smith has one species of a reddish colour, with a black spot on each wing cover. Found on trees in a red ant's nest.

Alurnus.

LEAPING TORTOISE BEETLE.

Fifteen species of the tortoise beetles belong to the genus *Oedionychis*, which is distinguished among the tetramerous beetles "by its thickened hinder thighs, by which it is able to leap a considerable height into the air." The species are small and of bright colours. One is light green, another deep blue; one has coppery reflections, and is bright bronze.

Oědionychis.

EUMOLPUS.

The genus *Eumolpus*, among the tortoise beetles, is distinguished by having the "second joint of the antennæ much shorter than the following one." Capt. Smith has collected six species.

Eumolpus.

GOLDEN-APPLE BEETLE.

Thirty species of the tortoise beetles belong to the genus *Chrysomela*, or "golden apple," so named from their rich colouring. They are very small, but very handsome insects.

Chrysomela.

LADY-BIRD BEETLE.

These are among the most useful insects in our gardens, from their habit of preying on aphides. Capt. Smith has collected four species in Toungoo. One resembles a small tortoise, yellow, spotted with black; and another is of a sombre ash colour.

Coccinella.

SKIN-WINGED INSECTS.

The *Dermaptera*, the *Euplexaptera* of Westwood, are represented in Burmah by earwigs.

EARWIG.

Several species of earwigs fly into our houses during the dry season. The insect is distinguished at a glance by a pair of caudal pincers that it turns up when touched, like the tail of a scorpion. I have met with a very large species on the Bghai hills, with a pair of pincers that look as formidable as a centipede's.

Forficulidæ.

STRAIGHT-WINGED INSECTS.

The *Orthoptera*, or straight-winged insects, embrace cockroaches, or runners; soothsayers, or plunderers; spectres, or walkers; crickets, and grasshoppers, or leapers.

COCKROACH.

Cockroaches, or black beetles, are exceedingly abundant in native houses. Whenever in my missionary excursions I have had occasion to sleep in Burman dwellings, I have uniformly found my bundles of clothing, and baskets of food, filled the next morning with cockroaches.

Blattidæ.

ပိုးဟတ်။ ဖျိုး. စီလီ။

SOOTHSAYER.

The praying mantis, or soothsayer, is one of our most common tribes of insects. One species is about five inches long, and bears a strong resemblance to *M. religiosa.* Another species of a green colour, with a large body, I cannot distinguish from *M. gongylodes;* a third is remarkable for a peculiar insignia on the central portion of the back when the wings are folded, resembling an oval scale of silver; but by far the most abundant species is smaller than either of the preceding, and may be often seen on flowering plants, watching in the branches, to pounce like a cat upon the insects that frequent the flowers; for they are among the most carniverous of insects, notwithstanding their reputation for sanctity. One old writer says: "So divine a creature is this esteemed, that if a child ask the way to a place, she will stretch out one of her feet and show him the right way." And the celebrated Xavier, it is said, "seeing a mantis moving along in its solemn way, holding its two fore legs as in the act of devotion, desired it to sing the praises of God, whereupon the insect carolled forth a fine canticle."

There is a very remarkable species in Toungoo, which has each joint covered by an ornamented membrane resembling a small leaf.

နှိုဗောင်။ စိုးဘိုး. စိုးဘိုဉ်။

PHANTOM INSECTS.

This is the most extraordinary tribe of insects known. There are none in England, but forty species have been collected in India and China. They are called leaf-insects, walking-stick insects, straw-insects, spectre-insects, and the like. I have noticed quite a number of species in the country, the most remarkable of which are the following:

WALKING-LEAF INSECTS.

An insect that cannot be distinguished at first sight from a green leaf, two or three inches long, is sometimes seen in the in-

terior, but is not common. I sent a specimen to a scientific society in America, but the curators never reported on it; and I am therefore unable to say whether the species be new or not. The natives have no name for it, inasmuch as they believe it to be a true leaf changed to an insect.

In this belief they are only a few years behind ourselves. Westwood says: "Bradley, although a F. R. S. described and figured two species of *Folium ambulans* (as he termed these walking-leaf *Phasmidæ*,) and informs us that the insect is hatched from eggs deposited in the buds of trees, at the time the buds begin to shoot. The insect is there nourished by the juices of the tree, and grows together with the leaves till its body is perfected, and at the fall of the leaf drops from the tree, with the leaves growing to its body like wings, and then walks about!"

Phyllium.

ဝိုလ်ကဲ့ထုဆုဖြစ်ပါ. ခွန်လန်အူကဲထိန်တၢ်ဖိစၢ်။

WALKING-LICHEN INSECT.

I have occasionally met with an insect precisely resembling a bit of dried lichen, both in form and colour. It is probably a new species, for there is nothing like it described in any of the books to which I can refer.

Phyllium.

WALKING-STICK INSECT.

There is a curious walking-stick insect, nearly a foot long, resembling a bit of dried stick, not very uncommon in the province of Tavoy. It is probably *Bacteria sarmentosa*, which Westwood describes from Assam. His specimen was ten inches and a quarter long, and he says, "this species of walking-stick insect is longer than any which I have yet seen."

Bacteria sarmentosa ?

FIELD CRICKET.

The *Achetidæ* crickets are numerous. Several species of field crickets are abundant, and they often fly about the lights at evening, but the geckos effectually prevent them from domesticating by usurping the places that crickets usually appropriate to themselves, and by devouring every one they can discover.

Achetidæ.

ခလံဒွၢ. ဝကံဒွန်။

MOLE-CRICKET.

The mole-cricket is very abundant, and the natives say that it often does much injury to the paddy, by burrowing among its roots. Some writers have endeavoured to prove that this insect is not

herbiverous, but waving that question, the fact of its burrows being near the surface of the ground, is sufficient to make its presence injurious to the growth of grain.

Westwood remarks: "They stridulate with a dull, low, jarring note, continued for a long time without interruption." In low, damp situations, their singing at evening, during the dry season, is quite stunning.

Acheta.

ထံၢဗူၢမ့ၢလ့ၢ. ကပၢစု။

GRASSHOPPER.

The grasshopper in common usage denotes both the grasshopper and locust; but Westwood restricts the race to that section of the tribe which have long slender antennæ and the ovipositor of the females exerted.

As thus restricted, we have numerous species of grasshoppers, some of which have large green wings, veined like the leaves of trees, which they much resemble. One species, about three inches long, with large wings, unlike others that I have captured, stridulates long and loudly in the hand.

နှံဗောင်။ ထွဲ-ထွ. ဒွဲ၊

LOCUST.

The locust tribe as defined by Westwood, includes all the grasshoppers, the females of which are destitute of an exerted ovipositor, and which have "the antennæ short, filiform, and with twenty or thirty joints."

We have several species of grasshoppers belonging to this tribe.

နှံဗောင်။ ထွဲ. ထွ. ဒွဲ. ဒွဲၢ်ပိၢ်. တဲ့ပၢၢ်။

MIGRATORY LOCUST.

I met with a beautiful species of migratory locust while at Monmagon on the sea coast. The head is perpendicular in front with two small protuberances between the antennae, and the top of the head is black with the face and cheeks white. Antennae cylindric with 15 joints. The protonotum is produced in the from of a semicircle, but not acutely pointed, though some might possibly say sentelliform, which would throw it out of *Locusta*, Leach, and bring it into the tribe which Westwood calls *Rutidores*. The protonotum is black, but the margin where it joins the head is yellow. There are three transverse rows of spines on the sternum, the proto-thorax with two orange rounded protuberances as large as the eyes, while the other spines are jet black, except on the sides of the thorax, where they are light olive. The upper wings are like gauze, of a pale green, with numerous

irregular sized bright yellow spots on the veins. Lower wings black at the base, paling in to dull white at the extremities. The legs are glossy black, but the trochanter and femur of the hind legs have markings of yellow. The femur is unarmed, but on the hind margin is a ridge of finely rounded yellow protuberances. The lotra is armed with fine spines. Length 2 inches, expanse of wings 3½ inches.

I failed to discover any cavity at the base of the abdomen, yet on seizing the insect by the wings, it threw out a large quantity of froth from between the base of the abdomen and the extremity of the thorax, on each side forming a congery of little bubbles more than half an inch in diameter; and after this was wiped away, the insect produced at intervals a low stridulating sound from the same region, and a trembling motion was observed at the base of the upper wings, as if they were acted on by a current of air from some cavity beneath them. The feet had certainly nothing to do in producing the sound.

They appeared suddenly in great numbers, and after remaining two or three days, departed as they came without leaving a straggler behind. The Burmese call it *hsen-po*, elephant insect, and say it appears occasionally, when it does much injury to the young paddy; and a Karen recognised it as a species that appears at intervals on the hills north of Maulmain. I have met with another locust in the interior, which is I think identical with a species that is sometimes seen in the neighbourhood of Calcutta.

Locusta.

ဆင်ပိုး ထွဲ. ခွဲ့ဝိုး

TRUXALIS.

A species of grasshopper, with a peculiar "elongated pyramidal shaped head, is not uncommon.

Truxalis.

ခွဲ့ဝိုသဘာဝ်

NERVE-WINGED INSECTS.

The nerve-winged insects are represented in Burmah by the termites, or white ants; damsel flies, or dragon flies; and ant lions.

WHITE ANTS.

The traveller in British Burmah is frequently treading over mines of white ants, or termites, as they have colonized almost every part of the provinces; but their depredations are perhaps not as incessant as might be anticipated from their bad reputation

of being "the most absolute pests of mankind." My study-table stood for several years within a few inches of a post tenanted by myriads, yet they never disturbed it. Occasionally I made a small incision in the post, when on listening, I could immediately hear a thousand little taps within—the battle-roll of sentinels beating to arms, and almost instantaneously, whole regiments would appear with enormous sickle-shaped jaws to defend their fortress. They do not usually, however, remain thus pacific, and unless the timber be impervious, they tunnel their way from room to room, from basement to attic, devouring chests of apparel, linen, books, or whatever impedes their course. On their foraging expeditions they frequently attach themselves to the exterior of a post, and arch their pathway up to the roof, the destruction of which they silently and speedily effect.

At their seasons of pairing, about the commencement of the rains, they take wing, and emerging from their dens at evening, come pouring into the bungalows, covering persons and tables so that the occupants are compelled to forsake studies and pleasures, and retreat to the darkest corners.

This annoyance, however, is mitigated by the geckos which come to the feast, and devour every one that drops its wings. The natives too, afford help by catching them, which they do by the pint, regarding them a luxury.

The architectural labours of these social insects display great artistic beauty, and variety. A metropolis of theirs was exhumed near my residence in Maulmain, the exterior of which appeared only like a large mound, not more than six feet high, but more than forty feet in circumference, with here and there a small circular vestibule visible through the turf-covered bastions, or a low spiral turret protruding above the oval vault. Within, were thousands of edifices with multiform compartments, surrounded and connected by labyrinths, domes, and portals; while beneath, curious stair-cases led down long winding corridors, through innumerable multilocular caverns—the whole series presenting the aspect of continuous stories one above the other, like city piled on city. Leading from this subterranean town in almost every direction, were hunting paths, arched and tunneled, extending across the road, and to distant parts of the compound.

The form of government existing among these insect bodies politic, is not despotic like that of the hive bees, nor republican like that of the processionary caterpillars, nor is it an aristocracy like that of the humble bees, but a sort of limited monarchy, with four principal orders—the royal family, the army, the labourers, and the fliers. These grades seem to be as distinct, and their occupations as different, as that of the four prime castes in Hindu society.

When the Karens laid open the stone-like masonry of their city, it was amusing to observe the instinct movements of these different orders. In the centre was the imperial chamber, or presence-room, with the queen mother in close imprisonment. Here royalty was surrounded by its court, and the palace chamber was many thousand times larger then the halls of the subjects, for the queen was so distended with eggs that she measured three and a half inches in length, and an inch in breadth. The workers were all busy, some enlarging the apartments, some tending upon the larvæ and pupæ, and others returning from the hunting exploits with stores of provisions. The soldiers only were idle, but no sooner did the pickaxe effect a breach in their walls, than the alarm spread with telegraphic speed, and in a moment myriads of furious warriors were on the march from story to story, rushing on to the aid of the few who were bravely disputing the entrance of the foe. Nor did these sturdy troops cease to fight for their queen until the belligerents withdrew, when each division retired within the citadel, and hosts of labourers came forward to repair the walls.

Termitidæ.

ချုတ်။ ပအီၤ. ပအူး။

DAMSEL FLY.

We not only have Moore's "beautiful blue damsel flies," but we have them also green, red, and yellow. They are often called horse-stingers, and dragon flies. Their habits of preying on gnats, and other small insects, make them very welcome companions in the jungles; and it is on the borders of water-courses in the interior that they are seen in their beauty and variety. This is one of the few insects which the Karens recognize in its larva state; and they often point out the larva in the water, which bears a distant resemblance to the perfect insect, but the body is shorter and thicker, and their wings are only rudimentary.

Libellulidæ.

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ANT LIONS.

In sandy situations holes may be often seen in the form of inverted cones which are the pit-falls of the ant lion. On close examination a pair of large tusks may be seen peeping up at the apex of the cone ready to seize upon any unfortunate ant, or other small insect that may tumble into the snare. This, however, is the insect in its larva state. In its perfect state it resembles the dragon fly, but it is rarely seen.

Myrmeleonidæ.

GAUZE-WINGED INSECTS.

The *Hymenoptera*, or gauze-winged insects, have legions of representatives in the form of gall-insects, ichneumon-flies, sand wasps, mason wasps, stinging ants, common ants, wasps, hornets, carpenter bees, honey bees, and dammer bees.

GALL INSECT.

Gall insects are numerous, but the most remarkable that I have seen are found on the leaves of a species of terminalia.

Cynipidæ.

ICHNEUMON FLY.

Ichneumon flies, characterized by depositing their eggs in the bodies of other insects, are occasionally seen.

Ichneumonidæ.

MASON WASP.

One or two species of mason wasps abound, and elaborate their tenements several inches in length to the legs of tables, book-cases, the sides of partitions in our bungalows, and sometimes in key-holes. These curious galleries are constructed of clay, which the insect kneads to a proper consistence with its mandibles; and when the clayey portals are removed, the cells are found filled with caterpillars, walled up for nourishment for their larvæ.

They are industrious insects, and will reconstruct quite a long series of cells in three or four days; but it is the female only who is entitled to this honor. One would suppose it might be her share to weave the silken tapestry for her apartments, but besides this she builds all the walls, while her mate sits by in sheer indolence, like a lazy Burman while his wife rows the boat.

I have frequently examined these nurseries on the partitions of my study. They sometimes consist of ten cells, with clay stucco walls about a quarter of an inch thick. Each cradle is about half an inch broad, an inch long, half an inch high, and lined with silk that rivals in texture the finest damask.

Sphegidæ.

ပဒူ။ ဖျုး. ဖျိန်။

MINING WASP.

We have several species of solitary wasps, that excavate their habitations in sandy banks.

Sphegidæ.

ထွံ၂မၢ့ခဲၤ. ထွံဉ်ဖါကျံ။

STINGING ANT.

Stinging ants, as they are denominated, are very common, and their sting quite insufferable. They are not, however, ants, but a tribe of sand-wasps, the females of which are destitute of wings.

Mutillidæ.

ပရွက်ဆိတ်။ ထုးခွေး. တာဒ်ခံ့ကျီး

ANT.

Ants, as in all tropical countries, abound both in numbers and species. The Karens distinguish a dozen different classes.

Formicidæ.

ပရွက်ဆိတ်။ ထုး တာဒ်

EDIBLE ANT.

A species of ant is very common which constructs its nest in trees, formed of leaves united together with a papery substance, that the insect itself fabricates. The nests are sometimes a foot in diameter, and the ants are considered quite a delicacy with the Karens, who eat them in their curries. They are said to be very sour.

တာဒ်ဒု

WASPS AND HORNETS.

Wasps and hornets of the Linnæan genus sphex, as in most countries, are represented by several species.

Vespidæ.

CARPENTER BEE.

The females of two or three species of carpenter bees may be frequently seen excavating their cells in the cavities of bamboos, or chiselling for themselves tunnels in decayed wood. When the shaft is sufficiently deep, they deposit their eggs, and balls of nutriment for the grubs; then floor over the orifices with mud, and lay again, and so continue to do until they have deposited all their eggs.

These insects fly into houses, and Europeans call them bumble bees, but they belong to a tribe of solitary bees, of which no species are found in England.

Xylocarpus.

ပဒုံး။ ထိုဖိ. ကဒု

TREE BEE.

The domesticated bee is not found in the country, but there are several wild species that build in trees, and from which a

considerable supply of honey and beeswax are obtained annually. One species constructs its nest "in the shape of a large pear," which indicates a relationship to the genus trigona.

Apidæ.

ပျား။ နှ၊. ကနဲ။ ကနဲ့ဝ။

DAMMER BEE.

There are several other species of bees that are characterized by building their nests in the cavities of trees. The wax of one species is dark colored, of the consistence of resin, and is much used by the Burmese in calking boats. It is constantly seen for sale in the bazar, and Europeans generally regard it as the resinous product of a tree, or dammer. So Dr. Helfer considered it, and recorded it "a kind of balsamic gum-resin."

Three years after the publication of the above, Dr. McClelland wrote in his report on the teak forests of Pegu, "Dammer, *Pwaingyet*. This article is found in the bazars throughout Pegu. It is yielded by the *Shorea robusta*, or the Saul tree of India, which occurs plentifully in the forests on the Shan side of the Sitang east of Toungoo, and also, but to less extent, in the forest of the Prome district. I have not found, however, that the dammer is obtained from these forests, as none of the trees appear to have been perforated for it, so the supplies of this article are probably brought down to Pegu from forests beyond the frontier."

Three years more elapse, and the Rev. C. S. P. Parish writes me: "The Secretary of the Agricultural and Horticultural Society of Calcutta wrote to me some time ago for information about the pwaingyet, which several people confounded with dammer, and take to be a gum. I sent up some specimens of pwaingyet, and also several of the insects, which were forwarded to England, to Mr. Fred. Smith, of the British Museum, who has identified it as *Trigona loeviceps*, first sent from Singapore."

ကွၤ. ကွဲ. (The insect.)

ဆွဲညစ်။ ဆွဲလျက် *Pwai-ngyet.* (The wax.)

ကွၤဖြၢစွါးစိၵ. ကွဲကိုၤစိး ကွဲကျိုၤစိး။

BUTTERFLIES.

When a person dies, the Burmese say, the soul, or sentient principle, leaves the body in the form of a butterfly. This too was the faith of the Greeks more than two thousand years ago. "Among the ancients, when a man expired, a butterfly appeared fluttering above, as if rising from the mouth of the deceased."

The coincidence is the more remarkable, the closer it is examined. The psyche, or soul of the Greeks, represented by the butterfly, was the life, the perceptive principle; and not the pneuma or spiritual nature. So the Burmans regard the butterfly in man as that principle of his nature which perceives, but not that of which moral actions are predicated. If a person is startled, or frightened so as to be astounded for the moment, they say, "his butterfly has departed." When a person is unconscious of all that is passing around him in sleep, the butterfly is supposed to be absent; but on its return the person awakes, and what the butterfly has seen in its wanderings constitutes dreams.

The Greeks and the Burmese, undoubtedly derived these ideas from a common origin. In the Budhist legends of the creation of man, which originated in Central Asia, it is stated that when man was formed, a caterpillar, or worm, was introduced into the body, which, after remaining ten lunar months, brought forth the living man; and hence the reason why a butterfly is supposed to leave the body at death. Thus the caterpillar, or larva state; the pupa, or chrysalis, and the imago, or perfect insect, are, to the Budhist, representatives of man in his origin from the earth, in his subsequent conception in the womb, and in his perfect state as a sentient being; while the successive changes typify his endless transmigrations.

This is a wonderful land for butterflies. Birds of passage are common in most countries; but butterflies of passage are nowhere on record. Yet such are sometimes seen in Burmah. Westwood says: "Various species of butterflies are remarkable for their periodical or irregular appearance; of these the species of colias, or clouded yellows, are preëminent." It is remarkable that butterflies of this same tribe of "yellow" often appear in clouds in Burmah, and pass over the country in flocks, like the pigeons that annually migrate over Kentucky, and other western states of America.

An intelligent Karen writes me: "In the neighborhood of Rangoon, at harvest time, or a little before harvest, immense numbers of butterflies appear, some years coming up from the south and passing on to the north. They migrate each kind by themselves. Yellow butterflies, for instance, will pass for two or three hours; and after they have all disappeared, greenish-yellow ones arrive, and pass on like the first; and after them, black ones come and pass away in the same manner. Sometimes yellow ones alone will appear, and sometimes none but black ones." The season before the English took Rangoon large quantities of butterflies migrated over the country in this way, and many of the natives therefore augur, that their appearance is ominous of wars in some parts of the earth, if not in their own country. Others say that they indicate high waters the following season, but my informant remarks that he observed them twice without being able to discover that they portended any thing.

Caterpillars also appear periodically, and probably the same years that the butterflies are so abundant. A Pegu Karen from the delta of the Irrawaddy, informs me that at intervals of a few years, caterpillars appear in their paddy fields in immense numbers. They move over the country, devastating like a regiment of septendecenary cicadæ, devouring plants down to the roots, grass as well as paddy, though they do not long quarter themselves upon one locality, but move on like an army, being found every day a few miles in advance of their former position.

PRIAM BUTTERFLY.

One of the handsomest butterflies that I have noticed, is, I think, the male priam butterfly. The anterior wings are black, chased with green lines, and the posteriors green, variegated with black. It is of large size, but is rarely ssen.

Ornithoptera priamus ?

လိပ်ပြာ။ ဆုကိုးပံ့. စိးကပ့ၤ။

PIERIS.

One of the most abundant butterflies at Maulmain has dark upper wings approaching black, but the under sides of the posterior wings are brightly figured with red and yellow. It belongs to the genus pieris, as defined by Duncan, and may be distinguished from related genera by the under pair of wings embracing the abdomen.

Pieris.

လိပ်ပြာ။ ဆုကိုးပံ့. စိးကပ့ၤ။

CABBAGE BUTTERFLY.

Large flocks of small yellow butterflies may be often seen in gardens throughout the provinces, and single individuals almost every where. I have noticed them in great numbers where the Karens cultivate mustard. It is either identical, or nearly related to the common cabbage butterfly.

Pontia.

လိပ်ပြာဝါ။ ဆုကိုးပံ့အဘ့. စိးကပ့ၤဘီ။

WHITE BUTTERFLY.

A white butterfly, passing into a light blue straw colour, the margins of the upper wings tinged with black, is very common. An allied species has the wings bright yellow near the body, with the other parts whitish. These, with some others that may be seen throughout the country, belong to the same tribe which furnishes the common garden butterflies in England.

Pierides.

လိပ်ပြာဖြူ။ ဆုကိုးပံ့အအွၤ. စိးကပ့ၤဝါ။

DEATH'S-HEAD MOTH.

Capt. Smith has a death's-head moth in his collection which he raised from the larva in Toungoo, and resembles the English.

Acherontia atropos.

HORNET-HAWK MOTH.

A moth is seen flying in the dusk of evening of the same tribe as the hornet-hawk moth. It may be distinguished by its plumed antennæ.

Ægeriidæ.

SILK WORM.

The silk worm is reared extensively in the northern and western parts of Toungoo. A tribe of Karens, on and beyond the boundary are characterized by wearing silk pants, which they make from silk of their own manufacture. The worm is fed from the leaves of the mulberry tree, which is planted for the purpose. In some districts I am told other plants are used. It is a common error to suppose that all silk worms live on the leaves of the mulberry. The Eria silk worm, *Phalæna cynthia*, is fed on the castor oil plant.

The Tusseh silk worm, *Saturnia paphia*, is said to feed in the wild state on the jujube tree, *Zizyphus jujuba*; the silk cotton tree, *Bombax heptaphyllum*; and *Terminalia alata*. The Joree silk worm, *Bombyx religiosa*, is fed on the peepul; and the Malda silk worm, the cocoons of which are mixed with those of the Eria silkworm, is found on the mango tree.

ဦး ထိ. သတိၵ်။

ATLAS MOTH.

The atlas moth is one of the largest insects of the moth tribe known. The smallest specimens I have seen measured from eight to nine inches in the expanse of its wings, which were pencilled with the richest umber, brown and yellow, and bordered with magnificent ocelli. This moth belongs to the silk worm family, and until recently was known to entomologists only as a native of China; but it also abounds in Burmah. Efforts being made to raise the insect in England, the eggs are sometimes sent home in letters, but Hope, the great English entomologist, writes: "Send larva placed in mould," and the eggs would be much more likely to retain their vitality were they shipped in the same manner.

This is probably the insect which Mr. Blyth had from Rangoon of which he wrote: "A well known moth from Burmah. *Phalena patroclus*; a splendid species common in collections from China, Assam, Sylhet, and Aracan."

WOOLLY-BEAR.

Some years black, long-haired caterpillars, called woolly-bears, abound to such an extent that they are very troublesome in houses; and their hairs when they touch the skin produce considerable irritation. One year they were so numerous at Tavoy, that a gentleman was obliged to destroy a large heart-leaved fig tree that he much valued for its shade, as the only means of escaping the nuisance. They are sometimes so abundant in the forests that the natives in passing through the low shrubbery find themselves covered with them, and their limbs are often inflamed, and swelled by the hairs of these caterpillars entering the skin.

In the perfect state the woolly-bears are a tribe of moths which include the tiger moths. I have never observed the moths in great numbers, but an occasional one may be seen at evening. The salt-marsh caterpillar of New England belongs to this tribe.

Arctiidæ.

NIGHT-MOTH.

Night-moths with their antennæ simple, are very numerous. Two or three small species with their wings deflexed in repose, and forming a triangle with the body, are most abundant.

Noctuidæ.

GEOMETRICIAN.

The caterpillars, called loopers or geometricians, from their measured step, are well known, and are often seen in our gardens. In the perfect state these caterpillars are moths, some of which are called carpet-moths, from the veining of their wings resembling mosaic.

Geometridæ.

ERMINE MOTH.

A few elegant little moths, covered with metalic scales with black markings on a silvery ground, called sometimes ermine moths, are common.

Yponomeuta.

PORTABLE-CASE CATERPILLAR.

The larva of a minute moth is often seen bearing about on its back the case it inhabits. A gentleman lately called to show me a minute insect with two feet, which walked erect! On applying a magnifier it was seen at once to be one of these small caterpillars with its house on its back, like a resuscitated man bearing his own coffin.

Yponomeutidæ.

MINING CATERPILLAR.

I have observed in gardens, both at Tavoy and Maulmain, that no sooner had the large flowered, and large-leaved crinum* done flowering, than a mining caterpillar is seen at work beneath the epidermis of the leaf. If left unmolested, they increase as if by magic, and in a few days the whole of the leaves attached to the plant, some of which are two or three feet long by four or five inches wide, are entirely eaten down to the stem.

It appears to be made for this plant, for it does no injury to others, and disappears as soon as the leaves are all devoured. I have never seen the perfect insect to recognize it, but it is probably a moth.

Yponomeutidæ.

LIKE-WINGED INSECTS.

The *Homoptera*, or like-winged insects, embrace several that are very very unlike each other, as the cicada, the lantern fly, plant lice, and the lac insect.

CICADA.

Those famous singers, the cicadæ, celebrated by Homer, Virgil, and from the ancients down to the present time, are numerous both in individuals and species. One of the first objects that attracts the attention of an observer in some localities of the Karen jungles, is a clay tube several inches high, raised over a shaft sunk two or three feet in the ground, over which may be often seen a Karen, bending and inserting the extremity of a long branch of a thorny ratan, which after a few twists is withdrawn, bringing with it a grub that is deemed a great luxury.

The natives have a distinct name for the grub, and seem to be ignorant that it is the larva of the cicada. This I was enabled to verify on one occasion by observing the exuviæ of many of their pupæ adhering by claws to the serrated bark of trees, with rents in their backs out of which the perfect insect had escaped. The Karens, it may be observed, are no more barbarous in their taste, than the civilized Greeks, for Aristotle testifies that they were an article of diet, both in their larva and perfect state, and one species is still eaten by American Indians. The most common species is small, and often flies into dwelling houses.

Cicadidæ.

ယဲ့မ့၂လ့ၤ. ပိၢ်တံၢ်။ မုၢ်ဟါမိၢ်ပှၢ်။ တၢ်ဇွဇိၤ။
ဟူဉ်လ့ဉ်။ တၢ်သညဉ်။
ချာ့ထိာ့. ယဲ့မုဂ၂. ပံၢ်ချိ။ (*Larva state.*)

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* Crinum ornatum.

LARGE CICADA.

A large cicada, the Karens say, ushers in the dry season with its noble song.

ယဲယွေ. သံဝိန်ခွါ။

GILDED CICADA.

A cicada, gilded with a bright yellow transverse band on its wings, is occasionally seen. The Karens say its call is "Kau-wee, kau-wee," and this is the name by which it is known to them. I was one evening serrenaded by one that poured out its vesper song from a jack tree before my door, in strains loud enough to have startled one unacquainted with the musician. Its sounds were full, shrill, and continuous, swelling up like an Æolian harp so as to fill all the air around.

The instrument on which this gay minstrel perfoms, is a unique piece of mechanism,—a perfect melodian possessed only by the male, and which he carries about between his abdomen and hind legs. It consists of two pairs of plates composing a shield for the box concealed beneath. Under these plates is a delicate iridescent covering, tensely stretched over the cavity like the head of a drum; and attached to its inner surface are several muscular strings, secured at their opposite extremities to another membrane at the posterior end of the box. The music is produced by the alternate contraction and expansion of these strings, which draw the tense concave covering downwards, with a rapid receding, the sounds issuing from two key-holes of the instrument, strikingly analogous to the action of the melodian.

စီးဝဲဘာ. ကိုးဝွေး သူလွေး။

LANTERN-FLY.

I have noticed several species of the curious fulgoræ, but they are not common. An American species was formerly supposed to emit a bright radiance from its head, but modern observers have not confirmed the statement. I have not noticed any luminosity in our species. A specimen before me has a rostrum an inch in length, as long as the body, ascending at the top, and of a brown color. The fore wings are brown for about half their length, with reddish veins, and transverse silvery bands, the last interrupted. The latter half of the wings have the same red veins on a lighter ground, with a few silvery spots. The whole of the markings in form bear a striking resemblance to *F. Spinolæ*, but of a different color. The posterior wings are light straw color, dipped with black. The expansion of the wings nearly three inches. It appears to be a distinct species, representing the *F. oculata* of Penang, and the *F. Spinolæ* of Assam.

Fulgora (Hotina.)

ANCYRA.

Westwood figures and describes a small insect allied to the *Fulgora* which he had from Maulmain.

Ancyra appendiculata.

PLANT LICE.

Plant lice are often very destructive to our gardens, especially to sickly plants. They are not usually, I think, the aphidæ of Europe, but the cercopidæ. The ants, however, manifest the same affection for them, and make like efforts to obtain their honey-dew. One species may be seen covered with a frothy secretion like the common "frog-hopper," *Aphrophora spumaria.*

Cercopidæ.

WOOLLY BLIGHTS.

Some species which do not secrete honey-dew are of a large size, clothed with a white, cotton-like covering, and when disturbed they have the habit of leaping to a considerable distance.

Psylla.

ဆာဖာမူး. စီးဖါဝါး

LAC COCCUS.

The lac coccus is sometimes found in its cerements on a species of ficus, where it has deposited its eggs, reared its own mausoleum, and died, but lac is not formed extensively in the British Provinces, though very abundant in the Shan states adjoining. The Karens think the lac is produced by an ant, and call it the lac ant.

Coccidæ.

ထာဒွံ. တာဒ်ဝံး (ရှိပ်း *Lac.*)

DIVERSE-WINGED INSECTS.

The *Heteroptera*, or diverse-winged insects, are represented in Burmah by water boatmen, water insects, water skippers, and a large tribe of bugs, of which the bed-bug is the type.

WATER-BOATMAN.

A water insect that swims on its back, and dives with great facility, may be sometimes seen in our transparent streams. It belongs to the tribe of water-boatmen.

ဘာဝံးမဲ်း

WATER INSECT.

A large water insect, as denominated by the natives, resembling a gigantic cockroach, is not uncommon. The perfect insect has "the tarsi two-jointed, but quite incorporated with the extremity of the tibiæ, and terminated by a long, slender, and acute unguis," characteristic of the genus belostoma. A specimen before me measures two inches and three quarters in length. From some brief remarks on the Asiatic species of this genus, by Dr. Leidy in the Journal of the Academy of Natural Sciences of Philadelphia, the Tenasserin species is, I judge,

Belostoma indica.

ထံၗပါချုံၵဖိၵ. ထံစက်။

WATER SKIPPER.

A long-legged insect may be frequently seen stalking haughtily about on the surfaces of our inland streams, like a Burman king on the shoulders of his human horse. It has obtained the appropriate name of water-skipper. The Burmese call it the "marine officer."

Gerris.

ရေဆို။ ကပိုထံ။ ထိလွှက်ဇိုက်။ ထံစက်။ ဒိုက်လွှက်ဇိုခွါ။

BED-BUG.

The bed-bug is said to have been introduced into England from America, but it has been known in this country from time immemorial, and is found in every native dwelling. It has the appearance and habits of *C. lectularis*, but there may possibly be some specific points of difference.

Cimex lectularis.

ကျွမ်းပိုး။ ၁၂၇. စိုး။

WINGED BUG.

There are several species of the same tribe that furnishes the common bed-bug in the Provinces, with precisely the same disagreeable odour, but much stronger. A single insect crossing the path will infect a stratum of air of several feet in width, which remains for a considerable period. A small black species sometimes comes on the table around the lights at evening, which is very disagreeable, though its scent is not so strong as that of some others. In smaller numbers a grey species is an occasional visitor.

Scutelleridæ.

GREEN BUG.

A large greenish species is very injurious to fruit. I have observed individuals repose for hours on the oranges that were nearly ripe, sucking their juices through the skin; and when the oranges were plucked, they had large scars on the places where the insects had rested, and the orange within was injured in those places.

I examined a species in Tavoy which proved to belong to Westwood's *Tingidæ*. Rostrum 3 jointed, tarsi 3 jointed. Scutellum $\frac{2}{3}$ the length of the insect. Two small thorns on each shoulder, with a small brass coloured patch behind on the margin. Edge of the wing-cases with six black thorns on each side, six black spots on the abdomen, general colour of the insect deep green above and light green beneath.

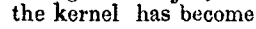
Tingidæ.

PADDY-BUG.

The Karens near Rangoon describe a similar insect as some years effecting much injury to the paddy by absorbing its juices, before the kernel has become hard. Whole fields of rice are sometimes abandoned in consequence of the devastation of the paddy-bug. The offensive odour which some of these insects emit appears to be done in self defence. Some, the grey species especially, will come about the table and not the slightest disagreeable scent be discovered, but no sooner has one come in contact with it, than it emits an intolerable effluvia.

Cimex. Linn.

Scutolleridæ



COPPER-COLORED LAND BUG.

A land bug of a copper color, sometimes shows itself with a long, four-jointed proboscis, and two sharp thorns on the corners of the thorax, with four smaller ones in a row between. Unlike most of its tribe, it emits no odour whatever.

Reduviidæ.

BLACK LAND BUG.

A black species is common with elegantly ornamented wings, and a long, four jointed rostrum, which emits no smell when undisturbed, but a very odious one when handled. The hind legs are enlarged, as if they belong to a water insect.

Coreidæ.

THICK-LEGGED BUG.

A small bug remarkable for its thick fore legs, is seen occasionally.

Lygæidæ.

NON VISIBLE-WINGED INSECTS.

The *Aphaniptera*, or insects with wings that are not apparent, embrace only the single tribe of fleas.

FLEAS.

Fleas, like rats, seem to be cosmopolites, and are found every where in great abundance.

Pulicidæ.

ခွေးလေး။ ချုံ. ကျုံ။

TWO-WINGED INSECTS.

The *Diptera*, or two-winged insects, embrace gnats, mosquitoes, father long-legs, gad-flies, house flies, and flesh flies.

GNAT.

Small gnats that are usually called sand flies, abound on the sandy banks of rivers, and near the sea-cosast, where they are the greatest annoyance of the whole insect tribe.

Simulium.

ဖျုတ်။ ဆမ်ပါ. ပးဂူ။

MOSQUITO.

Mosquitoes, at some seasons, almost cloud the air with their myriad numbers, and the only mode of escape from their sanguinary attacks is by hiding beneath a strong curtain; for though they will pierce through all kinds of apparel, yet they are not able to force their whole bodies through a bed-curtain; still they are no more numerous, or annoying here than I have found them on the Mississippi river. We have at least two species, one of which is banded with white stripes, and is more voracious than the other; as soon as it begins to taste blood the hand may be brought slowly upon it, and it chooses death rather than flight.

The larvæ of gnats and mosquitoes may be always seen in water that has stood for a few days, where they are readily discovered by their active motions, often diving and rising again to the surface. To avoid taking these inects in drinking, and thus destroying animal life, the Burmese priests strain their water, like the Pharisees of old, and it was these gnats in the larva state to which the Saviour referred, and not the gnat, properly so called, as the word is often rendered. In the languages of this country, at least, there are two distinct names for these two distinct things, and one does not imply the other.

Culicidæ.

ခြင်။ ဆိစီး. ပစိ (*Mosquito*)
ပိုးလောက်လန်း။ ပိုးစောက်ထိုး။ (*Larva.*)
ခံ့နိုး. "
ခွိုင်ကံ။ နိုင်ကံ။ "

LONG-LEGS.

The well known long-legged insect, known in England as father long-legs, or crane-fly, has its representative in the Provinces. The Karens call it long-legged mosquito.

Tipulides.

ဆ၂ထီၢစူ၂. ပစိၤထီစူ။

GAD-FLY.

Gad-flies bite so severely that when one appears among half a dozen natives, they begin to scatter at once, and do not rest till they have either killed it or driven it away. They are not numerous in individuals, or they would be intolerable. Whenever they have attacked me they have brought the blood at every bite, and they attack equally man and beast. The Karens distinguish three species.

Tabanidæ.

မှက်။ ခိၤဆူၤဆွဲၢ. စိၢ်ရှၢ်။ ပကိၤစး။ ထံးကလံ။
ထိတလိ။ (*Dark brown gad-fly.*)
ခိၤအွၤစူ၂. (*White handed gad-fly.*)
ပကိၤဝါခိၣ်။ " *headed* "
ခိၤဆ၂အွၤမွၤ. ပကိၤတၤဒွိၣ်။ " *eyelid monkey*"

TOUNGOO GAD FLIES.

Two voracious species of the gad-fly tribe abound on some of the Toungoo mountains. On first coming among them they brought the blood in a dozen places on my hands, and I found it necessary to wear thick gloves ; but after being naturalized, they seem less severe in their exactions ; though sufficiently annoying under their mildest treatment; but not quite so bad as the Tsetse of South Africa, *glassina morsitans.*

Tabanidæ.

DOG-FLEA BEE.

A fly that produces a swelling where it bites, of the gad-fly tribe, the Burmese call the "dog-flea bee."

Tabanidæ.

ခွေးလှေးဗျား။ တၢ်ဒွ. တလၤဒွး

HORSE FLY.

Another species a little larger than the above is as annoying to horses in the Bghai mountains, as a corresponding species is on the Illinois prairies.

Tabanidæ.

ပကဲၢ်မၢပ်.

MIDGE.

Clouds of midges which are sometimes improperly called gnats, may be often seen performing their nightly waltzes.

Tipulidae (Chironomides.)

HOUSE FLY.

The house fly, contrary to what most persons expect, is much less numerous than it is either in England or America, and occasions very little annoyance.

Muscidae.

ယင်ကောင်။ ဒူးလာ. ဝန်ဘူလါ။

FLESH FLY.

Flesh flies are exceedingly abundant, and very troublesome. The natives distinguish two kinds.

Caliphora. Sarcophaga.

ဒူးလာယ့ာခိၢ. ဝံမိၢ်ယ့ာ။ ဝန်ဘူလါဝံမိၢ်ယ့ာ။

PADDY FLY.

One year the crops in the southern part of Tavoy and in Mergui province, were almost wholly destroyed by a fly, that bore a strong resemblance to the famous Hessian fly.

Cecidomyides (Cecidomyia?

SPIDERS AND SCORPIONS.

The *Arachnida* or spiders, scorpions, and ticks, are sometimes treated as a class by themselves; but they are here placed under the head of entymology for the sake of convenience; and in accordance with the practice of many naturalists.

DOMESTIC SPIDERS.

The common domestic spider, aranea, is much less common in houses in this country than in Europe and America, which I attribute in a great measure to the geckos which devour them, and take their place.

Aranea.

ပင့်ကူကောင်။ ခဲ့. ကဝီး။

LEAPING SPIDER.

A small spider is often observed that forms no web, but takes its prey by hunting it, and when within reach, leaping upon it like a cat. One of these spiders will watch a small insect for a

long time, and follow it a distance, concealing itself as much as possible from observation until within the reach of a single leap, when it springs upon its prey at once. These belong to Swainson's tribe of vagabonds.

Vagabonda.

Salticus ?

RUNNING SPIDER.

A large spider that runs after its prey is seen in houses, and the females attract observation by the large cocoon of eggs that they are often seen carrying under the abdomen, like a squaw with a papoose at her breast.

Lycosa.

GEOMETRIC SPIDER.

The geometric spider is exceedingly abundant. They construct their webs in concentric circles, or spirals, on the model of the common garden spider, or the geometric spider epeira, affixing them in a perpendicular position in the branches of trees. They belong to Swainson's division of the wanderers, so called from their habit of running about in the vicinity of their nests, or webs, which they have constructed.

Orbiteles. *(Epeira ?)*

GRASS SPIDER.

One or more species of spiders are very abundant, which make horizontal webs in the grass, with a tube connecting it with some hole or crevice near it, like *Agelena nævia* in the United States.

Agelena ?

WATER SPIDER.

A spider that skims upon the water, and dives beneath the surface when pursued, is not uncommon. It looks like a species of a genus of water spiders, common in the United States.

Dolomedes.

ကဗီးထံ။

MYGALE BEAR-SPIDER.

A large, black, hairy spider, with tusks like a centipede, and very poisonous, is occasionally seen. The Karens call it the bear-spider. It is of the genus mygale, famous for the questionable habit of devouring birds; but the natives say that it kills cobras and other large snakes, and eats their brains.

Mygale.

ထောပင်း။ ခုယံ၊ ကဗီးတုဉ။

BLACK SCORPION.

A black scorpion is very common in the neighbourhood of Maulmain, though but rarely seen in the southern provinces. It can inflict a fearful sting.

Scorpio.

ကင်းမြီးကောက်။ တ့ဘီဆွဲဉ်။

BROWN SCORPION.

A small brown scorpion abounds in the southern provinces, and is the species usually found in houses. Its sting is severe, but the effect usually passes away in twenty-four hours.

Scorpio.

ဆ၂ကဲ၂ခ့. ပတ့ချဲး။

TICK.

A tick is common which lives on plants, but often attaches itself to travellers, when it eats its way into the flesh like the chigoe of the West Indies, producing festering wounds, if not extracted. I have often seen them pulled off when their head and shoulders were buried in the person's flesh, and they never let go their hold unless they are forcibly drawn away, when it is not uncommon for their heads to be left in the wound.

Acaridæ.

ဖွားး ခံ၂. ခံဉ်။

LARGE TICK.

A large tick, which does not appear to attach itself to man, I have sometimes observed. I found a very large individual once on a serpent.

Acaridæ.

MYRIAPODA.

The *Myriapoda*, or centipeds, and millepeds, though included among insects by some writers, are now more generally regarded as constituting a distinct class by themselves.

CENTIPED.

Two or three species of centipeds are common. One is often more than six inches long, with a very large pair of poisonous fangs. A specimen now before me that fell from the thatch-roof upon a lady's shoulder, measures nine inches in length, and an inch and a quarter in circumference.

Scolopendra.

ကင်း။ ၁၂ဘၢ့. ၁၂ဘီ။

LUMINOUS CENTIPED.

A small centiped which emits a strong, phosphorescent light, is very common. It does not, however, appear to give out its light until it is wounded, or at least attacked, when the whole of the part that has been touched suddenly becomes a living blaze, in no way dependent on the respiration, as in the fire-flies. There is a small dark line down the back, and indications of the joints of the body, but each lobe glows like a mass of phosphorus.

Scolopendra phosphorea.

ကင်းစုံး

MILLEPED.

A smaller and larger species of milleped are very common.

Julus.

ကင်း ဝဲၤဒူၤ ဝံဝိုဒူ

Conchology.

A large proportion of the land and fluviatile shells of Burmah and the Tenasserim Provinces were new to science until recently, and are wanting in the collections of most scientific societies in Europe and America. The large sea shells are well known species, but among the small unattractive mollusks, are a few novelties.

LAND SHELLS.

Perhaps the first collection of Burmese land and fresh water shells was made in 1842, when thirty-five species were sent to Dr. A. Gould of Boston, Massachusetts. He wrote in the Boston Journal of Natural History for January 1844: "The collection contained thirty-five species, out of which I have, as yet, been able to identify only four or five as described species. This is a very extraordinary proportion of new shells to be obtained from any part of the world, at the present day." He repeated a remark formerly made that "the forms of land and fresh water shells from our antipodes, bear a striking resemblance to those of our own country; while those from intermediate regions are quite dissimilar." These shells, he said, gave additional confirmation of the fact. This remarkable fact is confirmed by Mr. Benson, who in describing *Helix pylaica* from Maulmain, says: "It presents a singular resemblance to the N. American *H. hirsuta*, Jay."

SNAIL.

The genus *Helix*, to which the common snail belongs, has, according to Mr. Theobald's recent Catalogue, forty-three species in Burmah and the Tenasssrim Provinces.

ROUND-MOUTHED SNAIL.

A genus of snails called *Cyclostona*, from their round mouths, embrace the largest land shells in Burmah. Dr. Gould described two new species. *C. pernobilis* is the largest shell in the country, and is very abundant.

The Karens call it the primary shell. i. e. the one from which others are derived. The Burmans call it the quet shell, as they say it calls out *quet, quet!* Nearly all the different species of helix above are called by the Burmans varieties of the quet shell. Pfeiffer, a german conchologist, says this shell is identical with *C. aurantiacum*, (Schumacher.)

ခရုကွက်။ ချိ၂၀၂ဒိ၂. ချိုက်တး။ထိုက်။ချိုက်မုန်ပှန်။

Theobald has fifteen species of this genus in his Catalogue, but has changed the name, as has Benson, to *Cyclophorus;* a name that was proposed long ago by Montfort, for those species of *Cyclostoma* which have an umbilicus; but it was not adopted by Sowerby, nor I think by American conchologists.

GROOVED-MOUTHED CYCLOSTOMA.

At Maulmain, a species of *Pterocyclos* is not uncommon, a shell which differs from those belonging to cyclostoma by having "a groove hole at the hinder part of the mouth."

Pterocyclos cetra, Benson.

Mr. Theobald met with another species of the same genus on the Irrawaddy.

Pterocyclos pullatus, Benson.

FISSURE-LIPPED CYCLOSTOMA.

This is a species described by Gould as *Cyclostoma sectilabrum,* but which appears in Theobald's Catalogue as *Megalomastoma sectilabrum,* a name adopted by Pfeiffer.

Mr. Theobald has thirty one species in his list belonging to the *Cyclostoma* family.

BULIMUS.

We had four species of *Bulimus* in Tavoy, and Mr. Theobald has seven in his Catalogue.

B. atricallosus, (Gould), is a large and elegant sulphur-colored species, with seven whorls. It is a great favorite with Karen females, and is often seen strung, with the other species of the genus, on their necklaces. They call it the yellow shell. The Burmans call it heron's dung.

I have not met with it north of Tavoy. It has been referred to *B. citrinus,* and *B. perversus.* In one part of his Catalogue Mr. Theobald quotes it as "*B. perversus,* var. *atricallosus,* Gould"; in another *Bulimus atricallosus,* Gould."

ခရုဖိုင်ချေ။ ချိ၂ဘၢ့. ချိုက်ဘိ

Mr. Theobald says he did not meet with *B. moniliferus,* so I append Dr. Gould's description.

BULIMUS MONILIFERUS. Testa conico-oblongata, plerumque sinistorsa, lævis, luteo-cinerea, flammulis longitudinalibus, fasciâ

suturali lineari, et fasciâ subsuturali interruptâ fuscis; regione umbillicali fuscâ, fasciâ luteâ divisâ; anfr. 7, ultimo subcarinato; aperturâ subovatâ, basi angulatâ, sub-effusâ; labro reflexo, rubropurpureo, ad columellam dilatato; fauce purpureâ.

Long. $1\frac{1}{2}$; lat. $\frac{7}{10}$ poll. Hab. Tavoy.

Differs from B. *contrarius* and B. *lævus*, Mull., by its angular aperture, and the color of its lip and throat. The interrupted line, just in front of the suture, exists in all the specimens I have seen. It does not always occur reversed.

GLASSY SHELL.

A species of *Vitrina* was described by Dr. Gould under the name of *V. præstans*. He says: "There are about three whorls, not rising into a spire, distinguished by a delicate suture, which has an adjacent impressed line. The surface is delicately marked by the lines of growth, and these are crossed by shallow, somewhat scattered, revolving furrows. The apperture is nearly circular, rather wider than high; the lip is very delicate, generally inflected near its posterior junction, and the final additions to the shell are such as to cause the outlet to be somewhat contracted, or pursed in. The color is dark straw-color, or amber-color, inclining to green. A thin layer of enamel unites the two extremities of the lip. Greatest length four-fifths of an inch; heighth two-fifths of an inch."

Mr. Theobald thinks that it is not a vitrina; he says the shell is similar but more robust, (*Testâ vitrinæ simile, sed robustiore.*") and he creates a new genus to receive it. He errs in not being aware that there are two shells, one of which corresponds to Gould's description, and another to his own. I have a specimen of the latter before me, which differs from the former not only in being much more robust, but is two-fifths of an inch longer.

SUCCINEA.

On the flowering shrubs of my garden at Tavoy, I occasionally found a species of succinea, which Dr. Gould has named *S. semiserica*. "Length $\frac{1}{2}$ inch; breadth 3-tenth inch; height 3-twentieth inch. Its shape is like *S. tigrina*, Fer., and it is well characterized by the silky-white or pearly surface of the anteror half of the shell."

Mr. Theobald found another species at Rangoon.

ACHATINA.

Under every pile of fallen leaves, under every brick that has laid a few weeks on the grass, and under every stick of fallen timber, may be found in Tavoy a small sulphur-colored species of achatina with eight whorls; *A. octona*, (Gould.)

Mr. Theobald does not mention this species, but he says *A. tenuispira* is found on the Irrawaddy.

PUPA.

In the same localities, and in company with the above, may be occasionally seen a small red species of pupa. PUPA MELLITA. Testa parva, subfusiformis, pellucida, nitida, straminea, apice obtusa: anfr. 7 convexis; sutura impressa, denticulata: apertura ampla, subquadrata, plica columellari, plica basali, plica labiali et lamella postereori ringens: peritremate undulata, reflexa, alba.

Mr. Theobald says it is *P. bicolor*, Hutton, and that it is usually found in company with *Bulimus gracilis*.

CLAUSILIA.

I met with one species of clausilia, at Tavoy, the largest species of the genus known. Dr. Gould named it *C. insignis*.

Dr. Phillip, a German naturalist, collected specimens of another species at Mergui, which has been named *Clausilia Philippiana*, and I have since met with it in Amherst province. Pfeiffer says of this species: "Mit *C. insignis* (Gould), nahe verwant" —very nearly related to *C. insignis*." It would be difficult to find two better marked species. The latter with nine or ten whorls, has not half the diameter of the former, which has only six whorls.

A third species is seen occasionally at Toungoo, which does not appear to have been described.

Fresh-Water Shells.

Sixteen years ago more than thirty species of fluviatile shells that had been collected in the Tenasserim Provinces, were described or their species determined by Dr. A. Gould, the distinguished conchologist, who has since described the shells of the United States Exploring Expedition. He described seventeen of the species as new in the proceedings of the Boston Society of Natural History. In the last number of the Journal of the Asiatic Society of Bengal, No. IV. 1858, Mr. W. Theobald gives a catalogue of all the fresh water shells with which he is acquainted from Burmah, amounting to just thirty species. With a single exception, however, the names are all different, and a large number of them are represented as new species described by Mr. Benson. In correspondence with Mr. Benson, I learn, that he had not seen Dr. Gould's descriptions, and whether he has not redescribed some of Dr. Gould's species, is a question which no one is better able to answer than Mr. Benson himself, with whom it may be safely left.

MELANIA.

The melania which are river shells resembling the sea shells that are popularly known as screws, abound in all our streams, from Mergui to Toungoo. Of one species, the Hercules melania, Dr. Gould wrote: "This is the largest melania with which I am acquainted, and is very massive. It differs from the large melania found about Calcutta by its larger size, darker color, more numerous folds, which bear about four tubercles each, instead of having usually only a median carina bearing acute tubercles." His description of this and five other new species are given below.

MELANIA HERCULEA. Testa ponderosa, elongato-conica, fuscoviridis, decollata: anfr., numero integro ad 15, superstitibus 2–5, planulatis, infra suturam constrictis, plicis profundis 4-nodosis longitudinalibus; ultimo subcarinato, basi striis crassis cincto: apertura subrhomboidali, anticè productâ, callo columellari rotundato, crasso, fauce plus minusve fusco.

Long. 3 poll.; lat. 1 poll. Hab. Tavoy River.

MELANIA PAGODULA. Testâ crassâ; sub-rhombeâ, turritâ, tenuiter striatâ, fusco castaneâ, decollatâ; spirâ, elevatâ, conicâ, anfr. 4, angulatis, angulo spinis 6 robustis armato; ultimo anticè sub-rostrato, et costulis ad 4 cincto: aperturâ ovatâ, antrorsum productâ, fauce cærulescente, fusco maculato. Long. $1\frac{1}{2}$, lat. $\frac{7}{8}$ poll. *Hab.* Thoungyin River, a branch of the Salwen. Presented by Mrs. Vinton.

This remarkable shell is almost precisely like M. *arvigera* in its structure and proportions, but is three time as large, something like *Io spinosa.*

MELANIA BACCATA. Testa magna, crassa, elongato-turrita, epidermide fusco-castaneo induta; spira decollata, anfr. 6 rotundatis, plicis longitudinalibus et costis volventibus triseriatim nodoso-decussatis, ultimo ad basim 4 costato; apertura lunata, labio anticè producto, columella aurantia valdè arcuata; fauce cœrulescente fusco fasciato. Long. 2, lat. $\frac{3}{4}$ poll. *Hab.* Thoungyin River. Presented by Mrs. Vinton.

Closely allied to M. *inquinata*, but it is distinguished by its ranges of prominent pustular knobs and its orange columella.

MELANIA HUMEROSA. Testa elongato-turrita simplex, viridicornea; spira derosa, anfr. ad 8 convexis, propè suturam obsoletè angulatis, lineis tenuissimis spiraliter striatis, ultimo anticè costato-striato; apertura sub-ovali, anticè vix effusa; columella rotundata, alba, fauce fasciatim sub-livida. Long. $1\frac{7}{8}$, lat. $\frac{1}{2}$ poll. *Hab.* Manko, Tavoy. Presented by Mrs. Vinton.

Allied to M. *Virginica* in size and form, though somewhat more conical and robust, and with angular whorls. It still more nearly resembles M. *intermedia*, of Von den Busch.

MELANIA FLUCTUOSA. Testa parva, elongata, sub-cylindrica, fulvo-cornea, longitudinaliter plicata, plicis 8-10 compressis, acutis, fuscescentibus: anfr. ad 6 (apice derosa) vix convexis sutura haud impressa; apertura parva, ovata, vix effusa. Long. $\frac{3}{5}$ lat. $\frac{1}{4}$ poll. *Hab.* Newville, Tavoy. Presented by Mrs. Vinton.

Allied to M. *plicifera*, but is smaller, more cylindrical, with the plaits extending to the base, and destitute of the coarse revolving lines.

MELANIA BATANA. Testa turrita, solida, fusco-virescente, apice erosa, anfract. 6—7, planulatis, posticè sub-coronatis, costulis longitudinalibus et volventibus gemmularum series tres efformantibus; apertura angusto-ovata, posticè coronata, intus cærulescente, columella alba. Long. 1; lat. 2-5 poll.

Very closely resembles M. *Hydeii*, Conrad.

Three other species collected at Tavoy, Dr. Gould recognized as,

Melania thiarella, Lam.
" *corrugata.*
" *himalania.*

The preceding descriptions were made and published in 1843, and in 1858 Mr. Theobald furnishes a catalogue of five species of *Melania* found in Burmah, none of the names of which coincide with any of the above. They are:

Malania variabilis,	Benson.
" *lirata*,	"
" *tuberculata*,	Mull.
" *spinulosa*,	Benson.
Jugicostis,	"

The two last species are found in the Tenasserim river, and the three first in both the Tenasserim and the Irrawaddy.

ခရုအိုဖြူ၊ ခရုဇီဇင်း၊ ရှိုးမွေးထိုး့. ရှိုင်မွေးထိုး၊ သဝိုး၊ ရှိုးဆူဖြ့, ရှိုင်မွေးစိမ်းး။

PALUDOMUS.

Paludomus differ from *Melania* "in having the spire shorter than the aperture." Mr. Theobald refers three species to this genus.

Paludomus regulata,	*Benson.*
" *lubiosa*,	"
" *ornata*,	"

APPLE SHELL.

A well known species of apple shell abounds from Mergui to Toungoo and Prome.

Ampullaria globosa,	Swain.

လယ်ခရု၊ ခရုယားကြီး၊ ရှိုင်ပနုံအွှန်ဖးဒိုင်၊ ရှိုးထိုးမြေးဖြ့

PALUDINA.

The natural family to which the apple shell belongs, furnishes two species of *Paludina* which Dr. Gould described as new.

PALUDINA DOLIARIS. Testa tenui, conico-globosa, luteo-viridescente, arctissimé umbilicata; anfract. 5 ventricosis, striis minutissimis reticulatis, costulis numerosis inequalibus, purpureis, cinctis; apertura sub-circulari; columella reflexa, non appressa, alba; labiis posticé disjunctis. Long. 11-10; lat. 9-10 poll.

Differs from P. *Burroughiana* and *elongata* in form and aperture; but is nearly allied to P. *subcostatœ*, Griffith's Cuvier.

PALUDINA PETRO-A. Testa solida, imperforato, subglobosa, apice erosa, saturaté viridi, rufo fasciata; infract. 3, ultimo amplo, sutura præcipué marginata; apertura semi-circulari, columella laté planulata, rufuscente; intus nigrescente vel holoserica; operculo apice subcentrali, elementis concentricis.

Resembles Anculotus or Littorina, but its place is determined by the operculum.

Mr. Theobald adds three other species from Rangoon and Prome.

Paludina Bengalensis, Lam.
" *Crassa,* Hutton.
" *Malanostoma.*

ခရုယာဒ။ ချိုဘုၥလိုၤ. ချိုင်ပနၢ်အွင်ပြီဇိုၤ။ ချိုင်အွင်ထီလၢၢ်။
ခရုကျန်။ ခရုယာဒ။ ချိုမွၤထီၤထူၤမိၥ.
ချိုထိၥမိၤ. ချိုင်ပနၢ်အွင်။

AMNICOLA.

One shell resembling *Paludina*, Dr. Gould described as a new species of *Amnicola.*

"AMNICOLA CINETA." Testaminuta, tennis, ovata oblongata, imperforata, pallidè cornea, decollata: anfr. (superstitibus) 3, ventricosis, ultimo magno, subcarinato, lineis volventibus, et interdum fascia fusea, cincto: apertura ovata, basi admodum producta, labro simplici.

Long. hand 1–10 poll. Hab. fluv. Tenasserim.

BITHINIA.

Mr. Theobald has two species that he refers to *Bithinia,* Gray; a genus that only differs from *Paludina* "in having the operculum shelly and the mouth of the shell thickened internally."

Bithinia cerameopoma, Benson.
" *pulchella ?*

NERITINA.

The mountain streams of Tavoy contain two species of neritina, one of which is new.

Neritina capillulata, Gould.
" *indica.*

Mr. Theobald has three other species in his catalogue, the first from the Salwen, the second from the Tenasserim, and the third from Ava.

Neritina humeralis, Benson.
" *cryptospira,* "
" *fuliginosa,* Theobald.

LYMNEA.

In the lakes and ponds of Amherst province, a species of lymnea is not uncommon.

Lymnea acuminata.

Mr. Theobald has another species from Prome, if it be not the same under another name.

Limnea succines. Desh.

PLANORBIS.

A species of planorbis is common in the standing pools of Tavoy, and in many other localities in the Tenasserim Provinces. I have identified it with a species that abounds all over India.

Planorbis indicus.

ခရုပုတ်။ ရှိပေးခဲ့. ရှိဉ်ပေးခံ။

Prome and Rangoon furnish a species which Mr. Theobald refers *Planorbis coromandelicus*, Fab. : but it is probably the same, as the one in the Tenasserim Provinces, as the species at Toungoo certainly is.

FRESH WATER MUSCLES.

Dr. Gould found seven new species of fresh water muscles in the specimens furnished him from Tavoy and Maulmain. I have met with specimens of the same species in the waters of the Sitang. His descriptions are given below.

UNIO TAVOYENSIS. Testa rotundata, solida, sub-equilaterali, fusca, posticè dilatata, sub-angulata; umbonibus elevatis, unà cum latere postico corrugatis ; dentibus cardinalibus pyramidatis, lateralibus flexuosis : impressionibus musculorum profundis ; margarita albido-incarnata. Long. 2 : alt. 1 1-2 ; lat. 4-5 poll.

Closely allied to U. *corrugata*, Lam., which is less rounded and less corrugated.

UNIO CRISPATA. Testa ovali-elongata, inequilaterali, anticè rotundata, posticè subrostata, costaque umbonali ; umbonibus parvis ; colore virescente, fusco variegata ; rugis angulatis radiantibus undique crispata : intus livida ; dentibus parvis obtusis. Long. 1 7-10 ; alt. 9-10 ; lat. 1-2 poll.

UNIO FOLIACEA. Testa parva, compressa, fragili, fusco-virescente, inequilaterali, transversè oblongo-ovata, postice sub-angulata ; umbonibus parvis, subtilissime corrugatis ; dentibus exilibus, rectis, ad marginem parallelis ; margarita livida, iridescente. Long. 1 3-5 ; lat. 1-2 ; alt. 9-10 poll.

Closely allied to U. *Bengalensis* and *Corrianus* Lea.

UNIO EXOLESCENS. Testa transverso-oblongata, inequilaterali, sub-compressa, fusco-virescente ; postice dilatata, sub-biangulata ; umbonibus sub-elevatis ; dentibus cardinalibus parvis, obliquis interdum exoletis ; lateralibus remotis, rectis ; margarita livida vel ferruginea. Long. 2 3-4 ; alt. 1 1-4 ; lat. 3-5 poll.

In form and color resembles some stinted varieties of *L. complanatus*.

UNIO GENEROSUS. Testa magna, solida, transversa, oblongo-ovata, inequilaterali, antice rotundata et angustata ; postice obliquata, subrostrata, ad apicem truncata; margine ventrali arcuata, dorsali recta, adscendente ; umbonibus contiguis haud elevatis ;

valvis sub-tumidis radiatim substriatis, postice sub-costatis, epidermide fuliginosa, disco nitido: dentibus remotis; cardinalibus elongatis, obliquis, laminatis: margarita alba vel salmonacea, limbo iridescente. Long. $3\frac{3}{4}$, lat. $1\frac{1}{2}$, alt. $2\frac{1}{2}$ poll. *Had.* Newville, Tavoy. Mrs. Vinton.

The general form, convexity and color is that of *Anod. Vondenbuschiana*, Lea, though the largest specimens are more arcuated at base, and the younger ones are more oblong, like U. *complanatus*. The cardinal teeth are like those of U. *marginalis*, a more cylindrical shell, but they are still more elongated.

A. SALWENIANA. T. trapezoidea, compressa, subtenui, retrò dilatata, posticè truncata, colore picea; supra costam umbonalem radiatim plicata: umbonibus parum elevatis; margine supereori recta, compressa, ligamentum occultante, ante umbonibus excavata; utraque valva processu dentiformi cardinali, uno ante altero aptante, instructa; cavitate minimé profunda; impressionibus muscularibus minimé impressis; margarita sub-livida. Long. $5\frac{1}{2}$; lat. $1\frac{1}{4}$; alt. $2\frac{1}{3}$ poll.

Resembles small specimens of *Alas. complanata*, but is much less ponderous.

A. INOSCULARIS. T. transversé oblonga, sub-ovata, solida, subventricosa, picea: umbonibus parum elevatis; margine supra brevi, recto, ad angulum posticum rotundato, posticé subtruncato; infra arcuata; utraque valva processu cardinali crassa, dentiformi, instructa, uno ante altero aptante; margarita albida: impressione musculari antico profundo. Long. 3; lat. $1\frac{3}{4}$; alt. $1\frac{1}{8}$ poll.

Very closely allied to A. *edentula*, Say, but is a more solid shell, and the cardinal apophyses are more elevated and stronger.

Mr. Theobald furnishes a list of six species, the first five of which are found in the Irrawaddy, and the last in the Tenasserim.

Unio caeruleus.	Len.
" *crispisuleatus,*	Benson.
" *Pugio,*	"
" *marginalis,*	Lam. ?
" *Parma,*	Benson.
" *scutum,*	"

ဟောက်သွား။ ပင်ဝန်း။—ချိုအေ့လါ—ချိုင်လေးဝါ၊ ချိုင်တံဝ်။
ချိုင်တကွဉ်ကွဉ်။ ချိုင်ကွဉ်၊ ချိုင်တပူဉ်။

RIVER CONCHACEA.

The mountain streams of Tavoy contain a small species of cyrena, with a yellowish epidermis.

Cyrena.

ချိုအေ့တါဘေ့. ချိုင်လေးဝါဘီ၊

Another large species is found near the mouths of rivers, but when I identified it with specimens in the Asiatic Society's Museum in Calcutta, I was unable to learn with certainty its specific name.

Under the head of *Corbicula*, which is a synonyme *Cyrena*, Mr. Theobald has a new species from the Tenasserim.

Corbicula (Cyrena) arata, Benson.
Also, *Novaculina gangetica*, "

SCAPHULA.

Of the genus *Scaphula*, Benson, Mr. Theobald writes:

S. Hinna, B.—Tenasserim river within the tideway, but in fresh water. This species appears to have been previously noticed and recorded as a Dreinnia in Mason's work on the Burmese Fauna, till I forwarded specimens to Mr. Benson, who described the species in the annals of Natural History for 1856. It adheres firmly by means of a short byssus to porous rocks (Laterite), in the cavities of which it nestles.

The record was made on the authority of Dr. Gould, and the specimens were collected in the Tenasserim 150 miles above tide waters, so that it may possibly be a distinct species.

MIDAS' EAR.

In the mangrove swamps I have frequently met with a shell that appears to me identical with one called midas's ear.

Auricula Judae.

SCARABUS.

Another shell of the same genus now called scarabus, is so abundant that the animal with its shell may be sometimes seen in the Maulmain bazars, where it is sold as an article of food.

Scarabus plicata.

Mr. Theobald has two species of *Auricula* in his catalogue.

Auricula dactylus, Pfeif.
" *glans*, Benson.

Sea Shells.

There are few sea shells at Amherst, but they increase in number and variety on proceeding south to the Mergui Archipelago; but the most conspicuous and handsome species may be seen in collections made on the western side of the Bay of Bengal, and the Indian Ocean.

BORERS IN TUBES.

The pear-shaped tube of the gastrochæna and *Fistulana*, and the bases of the aspergillum, which resemble the mouth of a watering pot, are sometimes found in the sand; but by far the most abundant of the borers that dwell in tubes is the teredo. The well known *Teredo navalis*, that tunnels its way through the sides of ships, sometimes making fearful ravages, is exceedingly common in our waters; and there is another distinct species said to grow a fathom long, found in old fallen trees exposed to the tide waters. It corresponds well with *T. gigantea*, except that that species is said to bore in hardened mud, which this never does. This species perforates wood only, and is most abundant in the mangrove swamps. If it be not *T. gigantea*, it is undescribed. The worm is considered by the natives very good eating, and is collected and sold in the bazars. They call it

ပလုတ်။ ဖံလိုး. ပံဝ်လၢဝ်။ပံဝ်လု။

BURROWING SHELLS.

Shells of the genus pholas may be often found in old coral; and on the mud banks on the coast between Tavoy and Mergui is found a large species with a fragile shell. The natives eat the animal.

ခရုကြောင်မှောက်။ ချိုပလမိုပ. ချိုဉ်ဒိခိုဉ်။
ခရုဆင်နှာမောင်။ ချိုပကဆာ့. ချိုဉ်ကဆိတမျိုး

RAZOR-SHELL TRIBE.

There are several species of solen, or razor shells. One spe-

cies with a thick brown epidermis, is often seen for sale in the Tavoy bazar. The natives do not distinguish the species.

Solen abbreviatus, (*large species.*)
" *diphas,* (*small* ")

ခရူဆင်နှာမောင်။ ချိုဖံဒိုဒုခုအစုမံ၂
ချိုင်မုဲ်ဗါဖိစုမှုဉ်။

I never land on the sandy shores between Amherst and Mergui, without meeting with a pretty blue and white radiated species of

Solenocurtus.

ကမဲး။ ချိုအခွဲလးပှုလဲ၂ကံ၂ကဲ့. ချိုင်လးဝါဗိုင် လဲင်ကံင်စ့။

LITTLE BASKET-SHELL.

The shells of a small species of pandora may be often gathered on the sea-shore. The natives denominate them, as they do many other small bivalve shells.

Pandora.

ရှတ်။ ရှုဒ. ရှး။

PROMINENT LIGAMENT SHELLS.

The dead shells of a small species of tellina are seen on the sands, as are also the shells of a species of tellinides. The Karens do not distinguish them from the shells of the next family.

Tellina shengleri.
Tellinides timorensis.

ခရူမင်စါ

A large blue fragile shell is sometimes seen, that resembles the drawing of some species of soletellina, which differs very little, it is said, "from psammocola, and to this the genera psammobia, [psammotæ] and sanguino laria, are intimately allied. The distinctions between these genera are in fact very superficial and indeterminate."

မျတ်။ ချိုအခွဲလါပှုလဲ၂ဖုဒိ၂. ချိုင်လးဝါဗိုင်လဲင်ဖးဒိုင်။

Several species of donax are not uncommon.

Donax scortum.
D. cuneatus.

တဝတ်။ ချိုအခွဲလါစူ၊ခဲ့. ချိုင်လးဝါစူခံ။

CLAMS.

Several species of the genera cytherea and venus, are very abundant. In the bazars they hold the place of cardium or cockles in English markets, and mya, or clams, in the American. There is, however, a species of venus, larger than ours, sold in the American markets under the name of quahog.

There are one or two species resembling crassina, one of which with a groove has been described under the name of *Cytherea effossa.*

Cytherea.
Venus.

ရှပ်။ ဝက်နှား။ ရှပ်ပအုပ်။ ရှ၂. ရှး။

COCKLES.

Dead shells of the genus cardium, are often seen on the sandy shores, but they are not numerous. The most common species is

Cardium fimbriatum.

ချင်။ ရှ၂. ရှး။

THE ARK-SHELL TRIBE.

One species of arca, differing slightly from *A. antiquata*, is often abundant in the bazars, being used like venus, and cytherea, as a common article of food. The dead shells of several other species are scattered every where on the sandy shores, among which may be frequently found that curious shell, often supposed to be a monster, *A. tortuosa.* In the same localities may be collected the large shell of the eared cucullæa.

Arca graniosa.
" *sortuosa.*
Cucullæa auriculifera.

ဂျင်။ (ဂျင်လိမ်။ ချိုကဲ့. ချိုဉ်ကွဉ်။ *A. tortuosa.*)

The dead shells of a species of nucula may be sometimes seen on the sands; and another species, which I found in the mud brought up by the anchor in five fathoms water off the coast, Dr. Gould has described as

Nucula turgidy.

ရှပ်။ ခရုနှပ်စား ရှ၂. ရှး။

GIANT SHELLS.

More than one species of tridacna are found on the shores of the Mergui islands; and one species, the giant tridacna, may be sometimes seen with its two valves weighing several hundred pounds.

Tridacna gigas.

ကျားလက်သဲ။ ကလွန်တောင်။ လွမိရှါ. လွန်မိုင်ပှန်။

SALT-WATER MUSCLES.

A large species of muscle may be sometimes seen in the bazar, where it sells for a comparatively high price, being regarded by the natives as the best eating of any shellfish in the country. It belongs to the section of the genus without longitudinal furrows.

It is unlike any muscles I ever saw before, and is not improbably an undescribed species. Another, and much smaller species, with longitudinal stria, may be found attached to the rocks in miry situations.

Mytilus.

ကြောက်ပင်ဝန်။ ချိုပီးဝၢ. ချိုဉ်ပီဝၢ၊

A species of modiola may be frequently met with in the bazars. It is a new species, and has been named by Dr Gould *M. varicosa.* The Karens have no name to distinguish it from the muscles.

ကဘုန်သား။

The brittle shells of a large species of pinna, not differing from figures of *P. flabellum,* are not uncommon on the sandy shores. The Karens call them by the same name that they do the salt-water muscle.

ပင်ဝန်။

Large pieces of coral of the genus astrea, common on some parts of the coast, frequently abound with a species of

Lithodomus.

ခရုကြောက်ဓှောက်။ ချိုလခိုၤ. ချိုဉ်ဒီခိုဉ်။

PEARL OYSTERS.

I have found the pearl oysters as far north as Monmagon in the latitude of Tavoy, and it is found in several localities in the Mergui Archipelago. Capt. Lloyd mentions a pearl oyster bank on the southern part of Lampee Island, and Dr. Helfer met with others on the western side of the Selebee islands. The pearls, however, are not highly valued.

Melagrina margaritifera.

ပလဲမအေ။ ချိုဉ်ကလွၤ။ ချိုၤအဝဲၤ.

Hammer-headed oyster shells are often seen in collections made in the Bay of Bengal, but I have not met with them on the coast, though a small species of perna is not uncommon.

Perna.

ကမာခရင်။ ကမၢဂရၢ. ကမါကြွဒိၤ။ ကမါလီးစဲၤ။

SCALLOP TRIBE.

The well known scallop shells, ribbed and eared, have several representatives. We have species belonging to both sections of the genus, some having the ears unequal, and others having them nearly equal.

Pecten.

ပဲကွင်ဂျင်။ ချိုပီးဝၢ. ချိုဉ်ပီဝၢၤ။

A species of spondylus, a shell readily recognized by being covered with spines, is not uncommon.

Spondylus.

OYSTER.

Oysters are found on the coast from Amherst to Mergui, but they are not very abundant, nor very good.

Ostrea.

ကမါ။ ကနကမါ။ ကမၢ. ကမါ။

CHINESE WINDOW OYSTER.

A species of placuna, the Chinese window-oyster, is quite abundant near the mouth of Tavoy river.

Placuna.

သဘျာ။

TONGUE SHELL.

A species of lingula, or little tongue, so denominated from the resmblance of the shell to a small tongue, is occasionally met with on the Tavoy coast.

Lingula anatina ?

CHITON.

A species of chiton, a well known multivalve, is so widely diffused as to be occasionally sold in bazar as an article of food.

Chiton aculeatus.

တဝို။ သဝို။ တဝိၢ. နီးအဲၣ်။

LIMPET.

A large species of limpet abounds in some localities ; and patelliform shells belonging to two or three other genera are not uncommon.

Patella testudinaria.
Siphonaria.
Calyptræa.

သမီးရှိ။ ချိၢမံၢနိုး. ချိၣ်နိုၢ်အဲရိၣ်ခိၣ်ဘိၣ်။

BUBBLE SHELL.

Two species of bulla are occasionally seen, one of which is that elegant little shell the banded bulla.

Bulla vellum.

ခရုသံကလေ။ ချိၢဝုၤ. ချိၣ်ဝူၣ်။

SEA-HARE.

In the mangrove swamps I have sometimes collected specimens of a species of aplysia, which was called by the ancients the sea-hare.

Aplysia.

PARTITION LIPPED-SHELLS.

Two new species of nerita are found in great abundance near the mouths of some of our rivers. One was named by Dr. Gould,

Nerita articulata.

Three or more species of natica belonging to the same tribe as nerita, and called by the same native names, are not uncommon.

Natica maculosa.
" *lineata.*
" *melanosterna.*

ခရုမင်စါ၊ ခရုယာပင်လဲ။ ခရုမျက်လုံ။ ချိုဘုဒ်လိုးပဲ့လဲ့ ချိုဉ်ပနှါအွဉ်။

NERITINA.

Three species of *Neritina*, one of which was described by Dr. Gould as new, are very common.

Neritina smithii.
" *indica.*
" *capillulata,* . Gould.

SEA-EAR.

I have seen two species of sea-ear from the islands in the Bay of Bengal, one of which is remarkably brilliant, and beautifully iridescent, and they probably exist on our coast.

Haliotis.

TURK'S-CAP.

A large species of trochus, often called turks'-cap, is seen in great numbers on the shores of some of the islands.

Trochus.

သင်တွံ။

STAIRCASE TROCHUS.

The species of solarium called the staircase trochus, so common in collections, may be often gathered on our shores.

Solorium perspectivum.

ချိုဘွဲ့ဖိ၊. ချိုဉ်ဘဲ့ဖိ။

ROTELLA.

On every sandy beach may be seen great numbers of a pretty diminutive species of rotella.

Rotella restraia.
" *vesti.*

ခရုခယာပင်လဲ။

MONODONTA.

A small shell characterized by a "tooth-like projection in the aperture," and of the genus monodonta, is quite common. The natives have no name to distinguish it from nerita.

Monodonta.

TURBO.

One or more species of turbo are found on the coast, but they are not abundant.

Turbo marmoreus.

SCREWS.

The shell-fish called screws, from the shape of the shell, may be often seen in bazars.

Turritella terrebra.

ခရုစအိုလိမ်။ ချိ၂မ့ဒေထိုးဘံး. ချိန်မ့ဒေတိုဝိန်လဲန်။

PERIWINKLE.

Two new species of littorina, or periwinkle, are found in great numbers on the rocks washed by the tides.

Mr. Theobald has two shells in his catalogue nearly related to this genus.

Assiminea Francesiæ,	Gray.
Stenothyra monilifera,	Benson.

CERITHIUM.

Two or more species of cerithium are common. One is seen for sale in the Maulmain bazars.

Cerithium obtusam.

ခရုကဒုန်။ ချိ၂မ့ဒေထိုးပ့လ့၂. ချိန်မ့ဒေတိုဝိန်လဲန်။

FASCIOLARIA.

A species of *Fasciolaria* is met occasionally.

Fasciolaria plamentosa.

TOWER-OF-BABEL.

A shell which from its long contorted spire is sometimes called tower-of-Babel, is occasionally found along the coast, and a small species of the same genus.

Pleurotoma babyloniæ.

DISTAFF FUSUS.

The distaff fusus, a favorite shell with collectors, may be seen occasionally on the Tavoy coast.

Fusus colus.

PYRULA.

The fig-like pyrula, the bat-like pyrula, and a third and smaller species of the same type as the latter, are among our most abundant shells.

Pyrula ficus.
" *carnaria.*
" *vespertilio ?*

ခရူသံကြီး။ ချိုၫဆူ၂. ချိုဉ်ဆူ။
ခရူဝက်တောင်။ ချိုၫဆူ၂ဖြ၂. ချိုဉ်ဆူဉ်ဖြ။ (*small species.*)

MUREX.

Several species of murex abound. One resembles the royal murex, and is a ponderous shell, almost a foot long. The Burmese call it " dragon's-head."

Murex regius.
M. haustellum.
M. exustus.

နဂါးခေါင်။ ချိုၫရှုးခိၫစွံ၂. ချိုဉ်ပယိုးအခိဉ်စံ။

THORNY WOODCOCK.

A shell remarkable for its long slender spines, and which is called both venus'-comb, and thorny woodcock, is scattered on our sandy shores.

Murex tribulus.

FROG SHELL.

One or more species of ranella, a shell resembling the murex, is not uncommon.

VARIEGATED TRITON.

Fine specimens of that large hadsome shell, the variegated triton, are sometimes brought from the Nicobar Islands, and they may possibly exist on this coast, although I have never met them.

Triton variegatus.

CONCH SHELL.

The Hindus in their processions may be seen blowing a large conch shell, apparently a species of triton that I have not met with on the coast; but one or more small species are not uncommon.

Triton.

SPIDER.

A large shell, well known by the not inappropriate name of spider, is very abundant on the islands of the Mergui Archipelago. The Burmese call it crab-shell.

Pteroceras scorpius.

ခရုကနန်။ ချိုၫထိၫဆူ၂. ချိုဉ်ထိဆူဉ်။

BROAD-WINGED STROMBUS.

A large elegant shell, with the outer lip expanded into a broad wing, is brought from some localities on the borders of the Bay of Bengal.

Strombus vittatus.

RHINOCEROS-HEAD.

A gigantic shell, resembling the head of a rhinoceros when laid on its mouth, is brought from some of the shores bordering on the Bay of Bengal. It appears to be a species of cassidaria, nearly related to the spinous cassidaria.

Cassidaria.

PURPLE SHELL.

Two species of the purple shell are not uncommon.

Purpura persiea.
" *callosa.*

CASSIS.

A handsome species of *Cassis* with three spines on the outer-lip, is found at Monmagon; I have seen fine specimens of that beautiful shell the tuberose cassis brought from the Andamans; and a third is cassis rufa, a large species.

Cassis tuberosa.

ခရုဝမ်းကိုင်။ (*The Monmagon species.*)

VENTRICOSE HARP.

That curious shell the ventricose harp, is found in the Bay, but I am not certain of the locality.

Harpa ventricosa.

DOLIUM.

A large, thin, inflated shell, of the genus dolium, is very common in some localities. It resembles the figures of

Dolium galea.

ဘူးရစ်။ ခရုကျောက်။

BUCCINUM, OR NASSA.

Two species of these small shells are known, but one I sent Dr. Gould proved to be new.

Nassa olivacea
" *gibbosa?*
" " Gould.

VOLUTA.

A large, handsome species of voluta, is not uncommon on the coast of Mergui.

Voluta.

ခရုသင်း။ ချိ၂ကန္ဒုဘာ့. ချိဉ်ကန္ဒုဒီ။

COLUMBELLA.

Two small species of columbella may be seen on the rocks, and sometimes crawling up the mangrove trees, one of which is new.

Columbella duclosiana, Sowerby.
" *rhomboidea,* Gould.

ခရုသစ်ပင်တက်။ ချိ၂ဖိ၂-ချိ၂ထ၂ဝ၂. ချိဉ်ထီဝ့ဉ်။

WEAVER'S SHUTTLE.

Among the rare shells found on our coast is the weaver's shuttle.

Ovalum volva.

COWRY.

Several handsome species of cowries abound on the shores of the southern provinces. One is

Cyprae arabica; another
" *tigrina,* spotted; and a third
" *annulus,* small.

ကျွေ။ လွ. လွန်။

CONE.

Cones are numerous, both in individuals and species.

A spotted species is *Conus betulinus.*
A banded " " *achatinus.*

ခရုမျှစ်စိတ်။

OLIVE.

Several species of olives are strewn on the coast from Amherst to Mergui. One is

Oliva utriculus.

ခရုဖိုင်လွန်။ကျွေပုတ်။ ခရုသဲပတိုး။ ချိ၂စူ၂ဝံ၂. ချိဉ်ပဝံး။

CROOKED-TRUMPET.

The broken shells of a species of spirula may be sometimes seen on the sandy beaches.

Spirula.

ခရုနှာမောင်းလိမ်။ ချိ၂မျိုး, ချိဉ်ဝမျိုး။

NAUTILUS.

The dead shells of a species of nautilus are found on the sandy beaches in great abundance.

Nautilus.

ခရုသဘီ။ ချိ၂ခွာ. ချိဉ်ခွ။

SMALL CUTTLE FISH.

A small cuttle fish is often found in the waters on our coast, belonging to the genus with eight limbs.

Octopus.

ရေကြက်။

LARGE CUTTLE FISH.

The shores are thickly strewn with "cuttle fish bone," indicating that large cuttle fish are also abundant. Among the "sea slug" that is dried and offered for sale at Mergui, is, if I am not mistaken, a species of loligo, or cuttle fish.

Crustaceology.

The crustaceans are represented on this coast by sand crabs, paddling crabs, beckoners, fresh-water crabs, river crayfish, sea mantis, hermit crabs, sow bugs, king crabs, and barnacles.

SAND CRAB.

This is a small crab that may often be seen running on the sands of the sea shore, into which it burrows. It belongs to a tribe remarkable for having their eyes seated on peduncles, but Mr. Blyth remarked on specimens sent him from Amherst by Mr. O'Riley: "The remarkable ocular peduncles only begin to appear when the crab is nearly a quarter grown."

Ocypoda ceratopthalma.

ကနန်မြင်စိုင်။

PADDLING CRAB.

A common crab seen in bazar, belongs to the tribe of paddling crabs, distinguished from the common crab by having the last pair of legs flattened into thin plates like paddles.

Platyonychus ? Polybius ?

ကနန်ထဲ။ ဆွဲပဲ့လဲ့. ဆွဲဂ်ဗိဂ်လဲဂ်။

BECKONER.

Another small crab common on the sea-shore where it burrows usually in companies, belongs to the genus gelasimus, and is identical with a species found near Calcutta. The male is remarkable for having one claw much larger than the other, and when running, they often elevate this claw, as if beckoning to to some one, and hence they are denominated callers, or beckoners. In Massachusetts an allied species is called the "fiddler crab."

Gelasimus.

RED FRESH-WATER CRAB.

A small red crad is very abundant on the banks of fresh-water streams in the interior, where their burrows are constantly seen in wet situations.

Thelphus.

လယ်ပစ္စန်။ ဆွဲဝိုး. ဆွဲဂ်ဝိုး။

DIMINUTIVE FRESH-WATER CRAB.

A very small crab is often found under stones in brooks.

ကြောက်ကနန်။ ဆွဲပံ၊. ဆွဲဉ်စာဉ်စဲဉ်။

LARGE RIVER CRAYFISH.

A large species of crayfish, about nine inches in length, resembles in form the smaller one. The rostrum has precisely the same number of serratures, but the hands are much longer in proportion, being equal to the whole length of the animal from the apex of the rostrum to the foot of the tail, and is armed all over with strong thorns.

Astacus.

ပစ္စန်ဘောက်။ ဘဒိဉ်ကိုး။

SMALL RIVER CRAYFISH.

Fresh-water lobsters, or river crayfish, are very abundant in our streams, and are constantly seen for sale in bazar. They resemble very much the English crayfish, but the rostrum has many more teeth, especially on the upper side. A small species is common, in which the hand is equal to the length of body from the posterior of the rostrum to the tail.

Astacus.

ပစ္စန်။ ဝီ၊. သဒိဉ်။

BROAD-ROSTRUM CRAYFISH.

A very minute species of crayfish, remarkable for a broad rostrum, is very abundant in our rivers.

Astacus.

ပစ္စန်စိတ်။ ဝီ၊. သဒိဉ်ဖိဖိ။

FRESH-WATER SHRIMP.

Another small cray-fish, or fresh-water shrimp, as it is sometimes called, is common in the mountain streams.

Gammarus ?

ပစ္စန်ရေဆွဲ။ ၁၄၊ခ၊ဂ့. သဒိဉ်တူဉ်စု။

MANGROVE-SWAMP PRAWN.

All the mangrove-swamps are full of little hillocks thrown up by a species of prawn that burrows deep in the mud.

ဓိုဂ်ကိုး။

SEA MANTIS.

A curious shrimp-like crustacean, nearly allied to *Squilla mantis,* is common on the coast. The Karens call it water centiped. Perhaps this is the species of which Mr. Blyth wrote : " A small squilla, if new,

Squilla biarmata."

၁၄သာ့ထံ၊. ၁၊ဘီထံ။

HERMIT CRAB.

This is the crab that takes possession of empty shells which seems to be necessary for its existence, "the posterior portion of the body being unprotected by a firm crust." They may be often seen running on their claws with their borrowed clothes on their backs, and many persons suppose that they are the formers of the shells they inhabit. One gentleman that I tried to convince to the contrary, assured me that I was mistaken, for he had examined the animal and found its posterior parts adapted for the shell, so that there need not be a doubt but that it was born in it!

Pagurus.

ပန်စွတ်။ ဗိဉ်လဲ့ဗိဉ်ခိ။

SOW BUG.

The sow bug is seen under stones in damp situations, but is not so abundant as in Europe and America.

Oniscus.

KING-CRAB.

The king-crab, horse-shoe, or sauce-pan-fish, apparently identical with the species on the American shores, is not uncommon on our coast.

Limulus.

လမ်း။ ပင်လဲကနန်း၊ ကွဲ၂. ကွဲ၊

BARNACLE.

Barnacles, which till recently held a place among the conchifera, are now classed with the crustaceans. They abound among the rocks on the sea-coast.

Balanus—Ibla.

ခရင်း။ ရ၇. ကြွေ၊

Annelida.

Besides the worms that are common to all parts of the world, there are, among the annelides of the Provinces, guinea worms, hair worms, land leeches, water leeches, and the serpent-shaped shells.

EARTH-WORM.

The common earth-worm appears to be as abundant in these Provinces, as in Europe and America.

Lumbricus.

ထီး ဆာ့ကလွေ့ ထိးကလဲ်။

INTESTINAL WORM.

A large intestinal worm, which often finds its way into the stomach, is very troublesome to the natives, owing to their indigestible diet.

Vermes.

သန်။ ဆာ့ကလွေ့အိုလျှဝှဂျှဒါ့
ထိးကလဲ်အိုဉ်လာပဟာဖုပူး။

GUINEA WORM.

The ancients were acquainted with the guinea worm, or dracunculus, a worm which shows itself in the flesh of the human body, producing disease, and if not extracted death. On this, as on many other subjects, our knowledge appears to have been stationary for many centuries. "Some speak of it," says Dr. M'Clelland, "as an *animalcule*, some as an *insect*, and some deny its being any thing more than a *detached absorbent vessel*, or a *nerve*." The animal shows itself externally by protruding its tail through the skin; and when in the process of extraction the animal is ruptured, a fluid escapes which has long been known to aggravate the disease, and fatal symptoms often ensue. It has been recently discovered that this milky fluid consists "almost entirely of young animals, perfectly formed," which satisfactorily accounts for the increased diseased action of the ulcer which follows, when this fluid enters the ulcer. Persons affected with the guinea worm are occasionally seen on this coast, but Dr. Morton informs me that in every case that has come to his knowledge, the patients were from the Madras coast. Still, the disease may be communicated to others, for it has been observed "that attendants on patients, and *dogs*, moving about them, get the

disease," the young no doubt affixing itself to the flesh of persons with whom it comes in contact and working itself in by the "fine sting-like extremity" of its tail.

Dracunculus.

HAIR WORM.

I have somtimes met with a long filiform white worm which I judge to be a species of

Gordius.

LAND LEECH.

Land leeches are very troublesome when travelling. I have had often to rest by the way, and pull off ten or a dozen from my person. On some individuals they produce bad ulcers ; and during the Burmese war many of the Sepoys were disabled from their wounds.

Hirunda.

ကျွတ်။ ဝၤ. သူး။

WATER LEECH.

Water leeches are abundant, but the Karens say they are never found in the streams that are not visited by buffalos ; and so far as my observation extends, they are not found in the streams where there are no domestic buffalos.

Hirunda.

မျှော့။ လိၤ. သလွၤ။

SERPENT SHELL.

The small serpent-shaped shells, usually found coiled on other shells, were formerly classed with moluscus animals, but modern naturalists regard them as worms.

Spirobis—Serpula.

Radiates.

The *Radiates* include the echinoderms, the acalephs, and the polyps.

ECHINODERMS.

The echinoderms embrace on this coast two or three species of sea-slugs, or beche le mer, several species of sea urchins, and two or three star fishes.

SEA SLUG.

Several species of sea-slug, trepang, or holothuria, are found on our coast. They are particularly abundant in the Mergui Archipelago, where they afford employment to the Selungs, who cure large quantities and sell them to the Chinese.

Holothuria.

ဆင်မျှော့။ပင်လယ်ဝိုး။ သဲပလုတ်။

SEA-URCHIN.

A small animal with a solid covering beset with spines, called sea-egg, sea-chestnut, and sometimes sea-urchin, is common on the coast. I have taken them with spines $3\frac{3}{4}$ inches long. There are probably several species, but my specimens are not complete enough in their spines to allow me to identify them satisfactorily.

Echinus.

ကြောက်သတော်။

OVAL SEA-EGG.

An oval species of sea-egg with "four leaf-like impressions diverging from the mouth," is more rare. It has a slightly elevated ridge on the under surface, and a pointed and sharp edge at the stern, bearing some resemblance to a vessel.

Spatangus ?

WHITE DOUBLE-STAR FISH.

This is a fragile circular shell two inches or more in diameter, slightly elevated in the centre, with a five-rayed star extending to the margin on the under side, and "a petaloid star" occupying half the diameter, punctured on the upper side. I imagine it will be found identical with

Echinarachnius conchatus, M'Clell.

သင်ပယာဝိုင်။

BROWN DOUBLE-STAR FISH.

A brown species, with divergent, ambulacra on the surface, extending to the margin; and three concentric pentagons, described on the under surface, I have met with occasionally, which belongs I think to the genus

Scutella.

သင်ပယာဝိုင်။

STAR FISH.

The star-fish or five finger, destitute of a shell, is common on the coast.

Asterias.

ACALEPHS.

The acalephs, or sea nettles, are numerously represented in our waters, from the phosphorescent animalcule which gives brilliancy to the waves in a dark night, to the sea-jelly more than a foot in diameter.

MEDUSA.

Sun-fish or sea-jelly, as they are often called, are frequently thrown on our shores, some of which are of great size.

Pulmon grade acalephæ.

ဦး။

PORTUGUESE MAN-OF-WAR.

The well known Portuguese man-of-war, belonging to the *Physograde acalephæ*, may be often seen on the waters that wash our shores.

Physalis pelagiea.

POLYPS.

The polypi on our coast embrace sea-anemonies, numerous species of coral, and a few sponges.

SEA ANEMONY.

Affixed to many of the rocks washed by the sea, may be seen several species of those curious flower-shaped animals called sea-anemonies.

Actinia.

CORAL.

Though ours are "coral strands," with a great variety of both horny and stone coral scattered over the beach from Amherst to Mergui, yet elegant specimens are very rare. Prof. Agassiz, in his recent examination of coral animals, demonstrates that they possess the same structure as the naked polypi; and remarks: "We have all the details of structure which actinia present in a miniature form in astrea."

BRAIN CORAL.

A species of coral with sinuous ridges, pupularly denominated brain coral, is occasionally washed up on the beaches of the southern provinces.

Meandrina.

CLUB-SHAPED PORITES.

A species of coral in obtuse, club-shaped lobes, the surfaces covered with minute stars, is not uncommon, and is nearly related, if not identical, with the club-shaped porites of the American seas. There appear to be also one or two other distinct species.

Porites clavaria ?

ISIS.

I have noticed in the bazars, though I never gathered it on the coast, a curious species of coral resembling the horse-tail isis. It is branched like a tree with white striated stoney joints, and black horny smaller joints between, which render the whole flexible.

Isis hippuris ?

ESCHARA.

An exceedingly fragile species of coral, with large spaces between broad expansions, is common.

Eschara ?

FUNGUS CORAL.

A species of coral, resembling in form a large fungus, is occasionally seen.

Fungia.

SCARLET CHAIN-CORAL.

A scarlet coral, composed of cylindric tubes united together, is occasionally found.

Tubipora musica.

STAR CORAL.

Star coral is more abundant than any other on the coast, and there are several distinct species, some fine specimens are studded with large embossed stars, others sculptured with regular indented stars, and others printed with minute meshes, giving it the impress of a bundle of lace.

Astrea.

TREE CORAL.

A considerable variety of tree coral is abundant on the Tavoy coast, some of the specimens very beautiful, presenting superb sea-groves of various hue and form.

MOSS CORAL.

A handsome coral like a tuft of long moss-like branches, belongs I think to the genus

Dynamena.

BLACK CORAL.

Black coral, of which beads are often made, is brought from the Mergui Archhipelago.

Corallium.

TENASSERIM RED CORAL.

A tree coral two feet long, of a deep scarlet, is found on the coast, which the residents often call red coral, but it is not the red coral of commerce ; it does not grow like that, and the red colour is confined to the epidermis, the substance of the coral within being grey.

SPONGE.

Sponge of more than one species is found among the corals, and one species appears to be nearly as valuable for practical purposes as the sponge of commerce. Many modern naturalists regard the sponges as of vegetable origin ; but it is convenient to give them here a place.

Spongia.

Botany.

Half a century ago, Dr. Buchanan, who accompanied Symes in his embassy to Ava, made a large collection of plants from the banks of the Irrawaddy. A dozen years afterwards, Felix Carey, an English missionary, collected many curious and new plants indigenous in Burmah, and sent them up to Roxburgh at the Botanical Garden near Calcutta, who described them in his "Flora Indica." After the first Burmese war, Dr. Wallich went with Crawfurd in his embassy to Ava; and his catalogue of plants collected on this visit contains 1650 species. Eight or ten years subsequent to Dr. Wallich's visit, Dr. Griffith came to the Tenasserim coast, and during a residence of fourteen months collected specimens of 1700 species of indigenous plants.

Soon after the close of the second Burmese war, Dr. M'Clelland was appointed Superintendent of Forests in Pegu, and in his report on the teak, notices all the principal timber trees in the country. More recently, the Rev. C. Parish, Chaplain, Maulmain, has paid considerable attention to the botany of the country, and many of this collection have been described by Sir W. J. Hooker. He has given special attention to the ferns and mosses which had previously been almost wholly neglected.

When more attention has been paid to the geographical distribution of plants, the Burmese flora will probably show, that the climate of the plains on this coast corresponds to one on the hills several thousand feet high on the other coast.

Roxburgh says that a species of oak, *Quercus fenestra*, is a native of the mountains in the vicinity of Silhet; on this coast the same species grows indigenous not fifty feet above the level of the sea. A gamboge tree, *Garcinia pictoria*, grows, he says, "on the highest parts of Wynaad," but the same tree grows at the foot of the hills in Tavoy, which border on tide waters. A species of willow,

he describes as "a native of banks of rivulets and moist places among the Circar mountains," but we have a species of willow on this coast which is met on every stream before the influences of the tide ceases to be felt. The chestnut, *Castanea indica*, he writes, "is a native of the hilly frontier of Bengal;" but the chestnut of this country, *Castanea martabanica*, grows nearly down to the sea shore. Speaking of the wood-oil trees, Dr. Wight remarks: "In this neighourhood, Madras, several species are found, but all natives of hilly tracts forming the Balaghaut. In Pegu, where they abound, they occupy the plains." He refers all the species of *Vatica* to the mountains, but we have one that drops its curious winged fruit from cliffs that overhang the sea.

Ardesia humilis, is a common shrub at Tavoy growing down to the plains; but its habitat on the other coast is "the eastern slopes of the Neilgheries in subalpine jungle."

Wrightea Wallichii, Wight states, is found on "the slope of the Neilgheries from about the middle of the ascent to the elevation of between 4000 and 5000 feet;" but "the original specimens of this species were collected in the Tenasserim Provinces."

Of the rose tribe, which includes the apples, cherries, and plums, Wight says there is not a single indigenous species on the plains of India, and that the species are "peculiarly extra tropical, a very few only being found within the tropics, and these at considerable elevations;" but on this coast we have one indigenous species of rubus or bramble, another of cerasus or cherry, observed by Griffith; another of pyrus or pear, found by Wallich on the Irrawaddy, and I have seen a species of pygeum on a branch of the Tenasserim within a short distance of tide waters.

A species of whortleberry is found from Tavoy to Toungoo, while all the other species in India are found on the mountains. The rhododendrons are peculiarly extra tropical plants, yet Mr. Parish found one in Tavoy, Mr. Lobb another at Maulmain, and a third abounds between Toungoo and the Red Karen table land. The pine is no where found at high temperatures, yet it is a common denizen of our forests from Maulmain to Toungoo. The common English brake has been found by Mr. Parish as low as one thousand feet above the sea. The silver fern of

Kamptschatka grows on the fort walls of Toungoo, and a mass that Mr. Parish gathered from a tree in Maulmain, has been found on mountains four thousand feet high in New Granada.

The Flora reads a lesson on the climate of the country, which cannot be mistaken; and, in accordance with it, where pines and rhododendrons are found in Toungoo, hoar frost is seen in January. The variety afforded by mountain, plain, and sea coast provides favorable changes of climate and scenery for invalids. During the hot weather at Toungoo, the thermometer on the hills, fifteen miles distant, is always ten degrees lower than in the city. On the sea coast it ranges eight degrees higher in the cold months, and eight lower in the hot, than in the interior ten miles distant. If two hundred inches of rain, in the Tenasserim Provinces, are unfavorable, the northern parts of Pegu afford retreats, as at Toungoo, where they are reduced to seventy or eighty; and on the Red Karen table land near, probably not half that quantity falls throughout the whole year. Indeed statistics prove, that with temperance and avoiding unnecessary exposures, Europeans may live in Pegu and the Tenasserim Provinces at least as long as in London, Berlin, or New York. The first American missionary to Burmah reached nearly the Mosaic period allotted to human life. The second must have culminated his three score years and ten; both having lived more than forty years in the country. The fourth* is between sixty and seventy, in good health. The sixth has laboured hard for thirty years in Burmah, and does as much work now as he did the first year of his arrival. The wives of the last three are still living, in as good health as their husbands, and though their ages are of course unknown, they have been here certainly since 1816, 1823 and 1829, severally. The next two missionaries in order, reached the Tenasserim Provinces in 1830, one of whom is still the most active, energetic man of his circle, and the other, though past sixty, is yet a young man, able to range over the whole fauna, flora, minerals and tribes, from Pachan to Karenee.

* Two young men who left the country after a short residence, are not taken into the account; and from unknown causes, it must be admitted that there has been a much greater fatality among the younger than among the older missionaries.

SELECT ORNAMENTAL TREES AND SHRUBS.

Perhaps no region in the world of the same size, contains a greater variety of ornamental trees and shrubs than Pegu and the Tenasserim Provinces. The following selection is perhaps sufficiently numerous, yet it might be easily enlarged.

AMHERSTIA.

This is the finest indigenous tree in Chin India, perhaps in the world. It is of low stature, with slender pendulous branches clustered under its tufted summit of lively green, and draperied with large pea-blossom-shaped flowers of brilliant red and yellow, which hang down from its graceful arches in tassels more than a yard long.

It was discovered by Dr. Wallich on the Salwen near Trockla, and named by him after the Governor General's Lady—the Noble Amherstia.

Dr. Wallich said: "There can be no doubt that this tree when in full foliage and blossom is the most strikingly superb object which can possibly be imagined. It is unequalled in the flora of the east, and I presume not surpassed in magnificence and elegance in any part of the world."

The *Illustrated London News*, of April 4, 1857, says:—"This exotic, which may be considered as the rarest plant in England, is now flourishing in full bloom in the new conservatory built purposely for its reception by the Marchioness of Londonderry at Wynyard. The plant, when very small—a foot high—was brought from India by Sir James Hogg, and presented by him to the Marchioness. Great care and expense have been bestowed upon it under the direction of her Ladyship, who has had the gratification to see it blossom twice—in January 1855, and during the past month. There are not more than two of these plants known to exist in this country. There were three of them in 1855; but the one in the possession of the Duke of Devonshire, at Chatsworth, which was procured at great cost, has died.

The precise habitat of the Amherstia is unknown. It has not been found indigenous in Amherst Province, where it was first found, unless it be in the neighbourhood of Belin, where it abounds, and Dr. Morton thinks it there, either naturalized or indigenous. Major Berdmore has looked for it in vain in the Province of Shwaygyen, and throughout the valley of the Yuneselon; and I have not met with it in Toungoo or Karenee. Major Berdmore is of opinion that the tree has been introduced by some Budhist pilgrim from the Shan states or China.

"Ho, Trockla! thy tide
Hath a beautiful bride,
The child of an iris-wreathed shower;

With vails flowing down
From her emerald crown,
Whose fringes unfold
In scarlet and gold,
A glorious sight,
Ever graceful and bright—
The Queen of proud Ava's wild bower.

Tall sweet blossomed trees
Are wooing the breeze
O'er highland, and dingle, and glade,
But though they allure
With their fragrance so pure,
The Amherstia is fairest,
The noblest, the rarest ;
Nor all the rich flowers
Of Albion's bowers
Can vie with its purpling shade." *

Amherstia nobilis.

သေပ်ကဝ် ဒိုကဒ်. ဒိကဒ်

MESUA.

The mesua, which in Ceylon is called "iron-wood tree," though not large, has an erect symetrical figure, whose deep evergreen foliage flowing downward from its cone-shaped crest, quite conceals its bowering branches, so that when covered with its rich blossoms, with ivory-white petals, and deep yellow stamens, it looks like the royal umbrella bespangled with gold ; and the Burmese say that their next Budha, *Aree-ma-taya*, will enter the divine life while musing beneath its hallowed shades ; hence it is a favorite tree with the priests, who plant it around their monasteries. In Sanscrit it is called nagakeshura, and Sir William Jones remarks of it : "This tree is one of the most delightful on earth ; and the delicious odor of its blossoms justly gives them a place in the quiver of Camadeva, the Hindoo god of love."

To this Moore alludes in the following stanza :

"Then rapidly with foot as light
As the young musk roe's, out she flew
To cull each shining leaf that grew,
Beneath the moonlight's hallowing beams,
For this enchanted wreath of dreams :
Anemones, and seas of gold,
And new-blown lilies of the river,
And those sweet flowrets that unfold
Their buds on Camadeva's quiver."

There are at least two different species in the country, *M. pedunculata* and *M. ferrea.* Much confusion exists in our standard works on botany in relation to this last species. The *mesua ferrea* of Roxburgh is the *M. Roxburghii* of Wight's Illustrations ;

* Ellen H. B. Mason.

the mesua tree of Calcutta, Serampore, and neighborhood. The *M. ferrea* of Wight's Prodromus is the *M. coromandelina* of Wight's Icones and Illustrations. The *M. ferrea* of Wight's Illustrations, is the *M. nagaha* of Gardener, the mesua tree of Ceylon; while the *M. ferrea* originally described by Linneus is *probably* the species found on this coast; but for the lack of books which contain the description of Linneus, it cannot be affirmed with certainty.

ကဏေါ်။ ဝန္ဇူး၊ ဝန္ဇုပ်။

NODDING CLERODENDROM.

The Karen mountain glens of Tavoy and Mergui are embellished with one of the most elegant flowering shrubs that ever beautified a landscape—it is the nodding clerodendron. The flowers are tinged with rose, but nearly white, growing in long panicles at the extremities of the branches from which they make a graceful curve, and hang down perpendicularly from ten to fifteen inches, like an inverted cone, so that the soft green foliage seems canopied with rosy white vails. The flowerets are few, the divisions of the panicle being remote, and each bearing only three or five flowers. The divisions and subdivisions being all rectangular, and each blossom hanging from its pedicel like an ear drop, order and beauty are inseparable associations with this rare plant. It deserves a place in every conservatory, yet from Loudon's Encyclopedia of plants before me, it had not reached England when that was printed; and it is not in Wright and Eaton's Botany of North American plants, indigenous and cultivated. The shrub blooms in the dry season, and rarely exceeds in its native soil more than ten feet in height.

Clerodendron nutans.

ငရုံပတူ။ ဖိုစရုံပံ၊ ဖိစာဉ်ပံ။

CHAMPAC.

The streets of our towns and villages are often shaded with the lofty distinguished champac, one of our few trees embalmed in song, of which the poet sings:

"The maid of India, blest again to hold
In her full lap the Champac's leaves of gold,
Thinks of the time when by the Ganges' flood
Her little playmates scattered many a bud
Upon her dark long hair."

The tree is in flower or fruit a great part of the year, and its rich orange blossoms, which are exquisitely fragrant, are also used by Burmese maidens to adorn their "long dark hair-"

It is the only representative we have on the coast of that "Glory of America"—the magnolia tribe.

Michelia champaca.

ငံကဝး။ စကဝး။ မနံၢပါး.
တနီ။ (*Tavoy.*)
ဖိနိုဉ်တၢၤ။ ဆူးပီငါ။

MAULMAIN RHODODENDRON.

Mr. Parish discovered a species of rhododendron on the summit of *Nwa-la-bo*, or "Ox's hump," the highest mountain in Tavoy, about four thousand feet high. The petals are white, but the inside of the flower is yellowish. Mr. Lobb, the well known collector, found the same flower on a mountain near Maulmain, and his specimens have been described as

Rhododendron Maulmainese.

Mr. Parish says there is another species on the mountains of Amherst province.

Rhododendron formosum.

TOUNGOO RHODODENDRON.

In every nook and dell near the summit of the highest mountains between Toungoo and the Red Karen table land, may be seen in December a gorgeous rose coloured rhododendron in full bloom. The tree is about the size of an apple tree, and the flowers deep red, larger than the largest roses. It appears to me identical with a species described by D. Wight as very abundant on the Neilgherries.

Rhododendron arboreum.

Mr. Parish, however, to whom I sent a specimen, thinks it is the species described by Roxburgh, which he calls the "most lovely of all trees."

Rhododendron puniceun.

JONESIA.

When Dr. Wallich found the Amherstia, it was growing beside a Jonesia, and though it be but little diffused over our garden plots, yet its symetry, and numerous bunches of red and orange flowers certainly entitle it to companionship with that celebrated tree. Roxburgh says: "When this tree is in full blossom, I do not think the whole vegetable kingdom affords a more beautiful object." Gaudama, Klaproth says, was born under this tree; and within the fall of its shadow he delivered his first harrangue. "At the instant of his birth," say the Burman sacred books, "he walked seven steps, and with a voice like the roaring of the king of li-

ons he exclaimed, 'I am the most excellent of men. I am the most famous of men. I am the most victorious of men."

Jonesia asoca. အသောကဖို။

KNOTTED CASSIA.

This species of cassia is remarkable for its large pink-colored flowers, and is seen tinting the Tavoy forests almost as beautifully as the calico tree does the steeps of the Apalachian mountains. It is highly esteemed in Bengal, but I have seen no one cultivate it in Burmah except Major Macfarquhar, and he told me his plants were sent him from the Botanical Garden near Calcutta!

Cathartocarpus nodosus.
Cassia nodosa.

၎တိန်။ ယိဝဉ္ဇ. ကယိုဝူ။

SWEET FRUITED CASSIA.

"This tree," says Roxburgh, "is uncommonly beautiful when in flower, few surpassing it in the elegance of its numerous long, pendulous racemes of large, bright yellow flowers, intermixed with the young lively green foliage." It bears a striking resemblance to the laburnum.

In Pali it is called *chaturengula*, "four fingers;" the leaves being some four fingers long; and a translation of this name is sometimes given it in the Burmese books.

Cathartocarpus Fistula.
Cassia Fistula.

၎ကြီး။ ယိအွၢ. ကယိုဝါ။
စတုရင်ဂုလာ။ လက်လေးသစ်။

FLOWERY CASSIA.

Though not so handsome as either of the preceding species, the flowery cassia is extensively cultivated. It is a slender, graceful tree, "every branch terminating in a large panicle of deep yellow blossoms;" and when several are clustered together, waving their radiant glories in the floods of a noon-tide sun, they look like illumined hills on the eve of a Burman Carnival.

Cassia florida.

ဓဲစယီ။ (*Bur.*) မုဓ်ဆီ။ (*Tavoy.*) ပံဝခး။ ပံဝခၤ.

MIMUSOPS.

A species of mimusops, a rare ornamental tree, is much valued by Burmese maidens for its small delicate sweet-scented blossoms, which they string in chaplets for the head.

Mimusops Elengi.

ခရူ။ ကိၣ်ကူၤ. ကးကူဉ်။

BUTEA.

There is a species of butea very abundant on the alluvial lands which is a most magnificent tree. The Pwo Karens plant it in their sacred groves, where the deep rich orange blossoms seen under a tropic sun in the dry season, enveloping their almost leafless trunks and branches, give the copse the appearance of a burning jungle. The Burman books describe the Himalaya forest as shining with the flowers of the butea "like a flame of fire."

Butea frondosa.

ပေါက်။ ဖီဂထိၵကိၵ. ဖီထိဉ်ကိးခွဉ်။

CREEPING BUTEA.

This is an immense creeper with flowers resembling the preceding species.

Butea superba.

ပေါက်နွယ်။ ဖီဂထိၵကိၵခွၵ့စုံၵ. ဖီထိဉ်ကိးခွဉ်စံဉ်။

GUM KINO TREE.

The gum kino tree is a majestic evergreen, whose yellow papilionaceous flowers, clustering amid the bright drooping foliage, scent the air, like the large magnolias, for several hundred yards around. It is propagated by simply planting large branches in the ground at the commencement of the rains. There are, however, two species, the red, and the white, as distinguished by Burmese—the red producing the finest timber, but the white padouk is by far the finest ornamental tree.

Pterocarpus indicus.

ပတောက်ဖြူ။ ကျူးကျဲၵ့. ကျီကျွန်။

WHITE BAUHINIA.

This is a handsome shrub, with large blue-white flowers. It grows rapidly from seeds, and flowers in the second or third year.

Bauhinia acuminata.

မဟာလှေကါးဖြူ။ ဖီဂဖ့ၤဒွၤ. ဖီမိးကပ့ၤ။ ဖီပ့ၤဝါ။

PURPLE BAUHINEA.

When in blossom this is a very handsome tree, bearing large purple flowers.

Bauhinea variegata.

" *purpurea.*

မဟာလှေကားနီ။ ဖီဂဖ့ၤဝီၤ. ဖီပ့ၤဝီၤ။

YELLOW BAUHINEA.

This shrub bears a large sulphur-coloured flower, and the upper petal has usually a deep purple spot on the inside.

Bauhinea tomentosa.

မဟာလှေကားဝါ။ ဖီဂဖ့ၤဘီၤ. ဖီပ့ၤဘီ။

CREEPING BAUHINEA.

There is a scandent species of bauhinia that creeps up to the tops of the highest trees, which has very large leaves, and whose flowers have the fragrance of mignonette. It approaches Vahl's bauhinia in size and habit, but its petals are red and yellow, while in that they are said to be white. It is probably one of the species named by Wallich, of which I have no description.

နွယ်ဘလံ။ ဖိုဖွေ့ဘံ့ဆွံ့. ဖိပူ့ဖိမုဂ်။

ESCULAPIAN-ROD BAUHINIA.

I have never seen the flowers of this species, but they are mentioned as small. The tree is remarkable for its contorted stem, and "it is said to have been," remarks Loudon, "the origin of Esculapius' snaken rod which he brought from India."

Bauhinia scandens.

မြောက်လှေကါး။ လံ်မိဉ်စာဂ်။

CHINA CHAMPAC.

This is a small South American tree, called by the Burmese China champac, whose straggling and often leafless branches shoot out from their extremities delicate orange-colored blossoms, tinged with red, and of sweetest fragrance.

Plumiera acuminata.

တရုပ်စံကါး။ သတော်စံကား။ ဖြစီ့ပေ့. ဖိဆိဉ်။

GUM ARABEC TREE.

The pretty, tall shrub, sometimes called gum-arabec tree in Calcutta, though not the true gum-arabec plant, is a favorite with the natives on this coast, and it grows rapidly from seeds. The flowers are deep yellow, small, in globular heads, like the mimosa, and powerfully fragrant.

Vachellia Farnesiana. နှံ့လုံးမှိုင်။

QUEEN LAGERSTRŒMIA.

When cultivated in England the queen lagerstrœmia is a small shrub, but here in its native soil it is a large timber tree, and when in flower is one of the most conspicuous trees. A tree in full blossom looks in the morning as if mantled with roses, but the flowers change through the day to a beautiful purple, making it appear at evening, if seen from a short distance, like a bower of English lilacs.

Lagerstrœmia regina.

ပျင်မ။ ခမောင်နီ။ (*Tavoy.*) ဆွေ့. ဦ။

SMALL LAGERSTRŒMIA.

The Tavoy forests are adorned with a smaller species of lagerstrœmia than the preceding, but the flowers are equally elegant and quite as large.

Lagerstrœmia.

ခမောင်ဖြူ။ ဆွဲခီ့ ဒွိခွါ၊ ဒိခွါ။

INDIAN LAGERSTRŒMIA.

This is a small, pretty shrub, common in gardens in Maulmain, and of easy cultivation.

Lrgerstrœmia indica.

PEGU LAGERSTRŒMIA.

In Pegu Dr. Brandis met with a shrubby species of lagerstrœmia, which may prove to be identical with the preceding species. "Flowers very large, leaves ever-green."

Lagerstrœmia. ကုန်ဖျင်မ။

HENNA TREE.

This is the camphire of the English Bible, and the cypress shrub of the Greeks and Romans. "The cypress plant," says Rosenmuller, "is held in particularly high esteem by the Greeks, the Arabs, and the Turks; and they think that they make an agreeable present when they offer a person a posy of its flowers. In reality, this plant is, as Sonnini observes, one of those which are particularly agreeable to the eye and the olfactory organs. The flowers, of which the coloring is so soft, spread the most delightful fragrance to a great distance, and fill with balsamic odour the gardens and rooms which they adorn." It is extensively cultivated by the Burmese, and hedges formed of it are common in Bengal.

The fresh leaves beat up with catechu,

——————"Imbue
The fingers ends with a bright roseate hue,
So bright that in the mirror's depth they seem
Like tips of coral branches in the stream."

This use of the leaves is as old as the Egyptian mummies, and is still practiced by Burman females.

Lawsonia alba.

" *inermis.*

ဝမ်။ ဘွဲ့ပိုးရွှေမှ့ ဘွဲ့ပိုးစုမှဉ်။

Mendi, (*Bengali.*)

SWEET SCENTED UVARIA.

Native cottages on the coast are often overshadowed by the

sweet uvaria, whose yellow-green petals almost blend their colouring with that of the leaves.

Uvaria odorata.

ပဒပ်ငန်။

GORDONIA.

A species of gordonia is a conspicuous tree in Maulmain. It belongs to the same family as the tea plant, and the camelias of which the japonicas are such favorites, and is a member of the same genus as the American loblolly bay, and Franklinia, to which the flower bears a strong resemblance. Wallich has named our tree the abundant flowering gordonia, but there is some difference between the Tavoy and Maulmain tree; whether enough however to constitute different species, is doubtful. The Maulmain tree has leaves precisely like *G. obtusa* "with shallow serratures;" but the leaves of the Tavoy tree are quite entire. The Burmese have different names for them.

Gordonia floribunda.

အနန်မ။ (*Maulmain.*)

သစ်ရား။ (*Tavoy.*)

ယံ၇၁၄. ကယိၤဝး။

ORNAMENTAL DILLENIA.

When a stranger debarks at Maulmain in February, his attention is arrested by a tree without a leaf, but covered with large gaudy yellow flowers; it is the ornamental dillenia. Several other species of the genus are indigenous in the Provinces.

Dillenia ornata.

စပ်ပွန်း။ စီ၂. စီ၃။

MYRTLE FLOWERED EUGENIA.

The old genus Eugenia, as defined by Roxburgh, is represented in Burmah by more than twenty handsome flowering trees or shrubs. The flowers of all resemble those of the myrtle, but more especially a species that I have met on the sea-coast, which Roxburgh has named *E. venusta*, or the "Lovely Eugenia." He described it as "An elegant tree, flowers like those of the common myrtle, and about the same size."

The Burmese call all the tribe *tha-byŭe.*

Eugenia venusta, Roxb.

Sizygium " Wight.

သဖြေ။

WHITE FLOWERED BARRINGTONIA.

There is a species of barringtonia in the Tavoy and Mergui jungles with drooping spikes of white flowers three or four feet long, and which would be much admired if introduced into the cities. The leaves are very large and lyre-shaped, and both flowers and foliage would contrast well with the other trees around it. The species is not described in any of the books to which I can refer.

Mr. Parish informs me that it has since been described as

Barringtonia angustata.

ကျဲကြီး။ ဝညင်အုဉ်။

SCARLET FLOWERED BARRINGTONIA.

This tree bears long pendulous bunches of scarlet flowers, and is very abundant in the forests, to which it is a great ornament.

This Mr. Parish says is

Barringtonia macrotachya.

ကျဲသာ။ ခွံ၇. ပတ္ဂုဝ်

RED-FLOWERED CORAL TREE.

A small tree covered with large scarlet blossoms, is often seen in the neighborhood of Karen villages from Mergui to the Red Karen country, and is very ornamental.

Erythrina.

တောကသစ်။ ဆိ၇ခိ၇. ဆၢမိ။

ARABIAN JASMINE.

This jasmine is probably more universally cultivated than any other flower. The common double variety is more generally seen, but the single flowered, with a twining habit is not infrequent.

Jasminum Sambac.

စပယ်။မလီ။

GREAT DOUBLE ARABIAN JASMINE.

The rich robed branches of this variety are studded all over like the snow-drop tree with lovely white flowers, the size of small roses, and delightfully fragrant.

Jasminum Sambac, plenum.

သဿီာမလီ။

CATALONIAN OR SPANISH JASMINE.

This is the most exquisitely fragrant species of the genus, and is very generally cultivated by both Burmans and Europeans.

Jasminum grandiflorum.

မြတ်လေး။

WILD JASMINE.

There is a wild climbing jasmine seen throughout the Provinces festooning the forests, and arching the pathways with its delicate flowers, like a wreath of snow flakes flung over the arms of a Canada spruce.

Jasminum syringœfolium.

သင်ခွေ။

TREE OF MOURNING.

The tree of mourning, sometimes called night-blooming flower, is as great a favorite in India as in the southern States of America. Its delicate orange and white blossoms pour the most delicious fragrance on the evening air, and then fall in showers, bedewing the earth's cold bosom with sweetness.

Nyctanthes Arbor tristis.

ဆိပ်ဘလူး။

PERIWINCLE TREE.

This is a handsome shrub almost constantly covered with blossoms, that can scarcely be distinguished from the flowers of the rosy-periwincle, though of a different genus. It was first discovered in Burmah, and Roxburgh, who introduced it into the Botanical Garden, said in his description: "The flower is like those of *Vinca rosea*, but larger and faintly fragrant; it is in fact one of the most ornamental shrubs in the garden."

Calpicarpum Roxburghii.

Cerbera fructiosa.

ဝလပ်။

ROSA.

The rose is quite naturalized on the coast, and is one of the abundant flowers in the European gardens. It is cultivated by the natives also to a small extent, and the flowers sold in bazar.

Rosa.

နှင်ဆီ။ ဖီဂဆျဆူ. ဖီတၤဆူဉ်။

SWEET BRIAR.

Our English residences are often filled with sweet odours from the grateful eglantine, or sweet briar, but the plant is kept alive with difficulty when exposed to the south-west monsoon.

Rosa rubiginosa.

PERSIAN LILAC.

This beautiful tree whose lilac clusters perfume alike the mansion of the American planter, the saloon of the Frenchman, and

the palace of the Syro-muhammedan, is here also occasionally found shedding its sweetness around our Indian bungalows, and embellishing their environs. It is called in England the bead-tree, and in the United States the pride of China, or pride of India.

Melia azedarach.

ကမါခါ။ ကမၢခ၂. ကမါခဉ်။

INDIAN TRUMPET FLOWER.

The large terminal erect racemes of a species of bignonia, or trumpet flower, are often seen near the dwellings of the natives; and its seeds are frequently noticed on account of the large membraneous wing with which they are surrounded.

Calosanthes indica.

Bignonia "

ကျောင်ရှာ။ ထုဒဲ့ဒီ့. ဒိးကဉ်။

STIPULED TRUMPET FLOWER TREE.

A common flowering tree is a species of bignonia that bears a long twisted pod. It is common at Maulmain; and the flowers are often seen in bazar where they are sold for food. The tree enters the native materia medica as affording a cure for psora.

Bignonia stipulata.

Spathodea "

တက်သမ်။ ခ္ဝ၂. ခ္ဝဉ်။

TOUNGOO TRUMPET FLOWER.

Toungoo has a beautiful species of trumpet flower. It is orange in the throat, changed near the mouth to dark crimson, which passes off on the limb to light purple. The mouth of the corolla is three inches across.

FRAGRANT CALOPHYLLUM.

Near the Burman monasteries, a fragrant flowered species of calophyllum is occasionally seen in cultivation, and is a remarkably handsome tree. The beauty of the leaves has given name both to the genus and species—calophyllum, *handsome leaf,* and Inophyllum, *fibre leaf,* " because the middle nerve of the leaf seems to ramify into a multitude of fibres;" while the flowers are in elegant white bunches, and very sweet scented.

Calophyllum Inophyllum.

ဖိုညက်။

ROYAL POINCIANA.

This gorgeous shurb which has been introduced from Madagascar into India, bears a most magnificent, and graceful flower;

and as it flourishes well if it were generally planted in our gardens, it would add much to their beauty.

Poinciana regia.

FLOWER FENCE.

This is a gaudy ever-flowering shrub planted in Barbadoes for hedges ; it is much cultivated by the Burmese, and the variety with yellow blossoms is occasionally seen in their gardens. It belongs to the same genus as the preceding, and is sometimes called peacock's pride, and Spanish carnation.

Poinciana pulcherrima.

ဒေါင်စုပ်။ ဝေယ်သီလာ။ (*Tavoy.*)

DARK-PURPLE PONGAMIA.

This tree is very common about Maulmain, and though vastly inferior to a multitude of others, Wallich thought it of sufficient beauty, to give it a place among his splendid engravings of rare Indian plants.

Pongamia atropurpurea.

ကျွဲတညည်။ ဘန်ဘာန်ဘီ။

CLITORIA.

The clitoria, with its deep blue flowers, is seen tangled with other climbers wandering over trees and arbors, in all parts of the country.

Clitoria ternatea.

အောင်းခဲ့ပြု။ ဘုဘၢကဘၢ့. ဘီဘန်ကဘီ။

GARLAND TABERNÆMONTANA.

The foliage of this tree very beautifully contrasts with its large blue-white double flowers; which are often improperly called on this coast, " wax flowers. " The wax flower of Bengal is a trailing creeper, *Hoya carnosa,* which has been recently introduced into European gardens. The single flowered variety is seen occasionally but not often.

Tabernæmontana coronaria, flora plena.

RECURVED TABERNÆMONTANA.

This is a low shrub indigenous about Maulmain, remarkable for its recurved peduncles and fragrant flowers.

Tabernæmontana recurva.

တောစလပ်။

ALLAMANDA.

This is a climbing shrub, a native of South America, which produces a great profusion of yellow bell flowers. It differs in some respects fron Voigt's description, and by some would perhaps be

referred to a different species, but it accords very well with Lindley's in his Flora Medica.

Alamanda cathartica.

ဖရောင်းပန်။

SCARLET CLERODENDRON.

The Burmese compounds are ornamented with this species of clerodendron, which bears a large cone of superb scarlet flowers, and although said to be originally from China, it appears to be naturalized on this coast.

Clerodendron squamatum.

ဘူကြီးနီ။ ဖီ၇ခွဲနှ၂၇. ဖီကွီၤကန၇။

FRAGRANT CLERODENDRON.

In the most arid parts of the forests, during the hottest months of the dry season, the path of the traveller is perfumed by the fragrant flowers of a large leaved species of clerodendron. Major Macfarquhar sent specimens to the Agricultural and Horticultural Society of Calcutta a few years ago, but they were unable to determine the species satisfactorily.

Clerodendron.

ဘူကြီး။ ဖီ၇ခွဲနှါ. ဖီကွီၤနှိ၎။

DOUBLE FLOWERED CLERODENDRON.

The Burmese cultivate a fragrant double clerodendron, which appears to be a variety of the last species.

Clerodendron.

နှင်အိပ်။ ဖီ၇ခွဲ၀၃ဒြ၂. ဖီကွီၤ၀းဒြဉ်။

CHANGEABLE LANTANA.

This straggling shrub appears to be quite naturalized in the neighborhood of Maulmain; though rarely seen in other parts of the Provinces. The flowers are yellow when they first open out, but afterwards change to a rose color.

Lantana nivea, mutabilis.

တရာပြက်။

CHASTE TREE.

This is a shrub much cultivated by the Burmans that bears a handsome little blue flower. Beth leaves and flowers are "rather agreeably heavy scented."

Vitex trifolia.

ကြောင်ပန်။

STROPHANTHUS.

There is a shrub about Amherst that bears a flower resembling the nerium, but with very long linear filaments to the end of

each segment of the corolla. It is a species of strophanthus, and well deserving of cultivation.

Strophanthus.

PICTURE PLANT.

The justicia, one variety of which has variegated leaves and the other deep purple, is multiplied throughout the country.

Graptophyllum hortense.
Justicia picta.
ငွေပန်း။ *variegated leaf.*
ကပူဝ်ခိဉ်လွလိုဝါ။ " ထွံၵခ့လဲးလိုးအွၤ.
စထပ်နီ။ *blood-red leaf.*
ကပူဝ်ခိဉ်လွလိုဂီၤ။ " ထွံၵခ့လဲးလိုးဝီၤ.

CAPE JASMINE.

Most Burmese gardens, as well as many European, and American, are graced with this tasteful shrub, which does not belong to the jasmine tribe, but is a species of gardenia. Its pure snowy blossoms, strongly fragrant, Loudon says, smell " like the narcissus ;" and they contrast delightfully with the thick deep green foliage in which they are set.

Gardenia florida.
သုမ်ဆင့်ပန်း။ ဖိၢကၵဒိၤ. တကဉ်ဒၢ။

GARLAND GARDENIA.

This is an indigenous tree, which produces a profusion of flowers that are white in the morning, when they first open out, but which, on exposure to the sun, become quite yellow.

Gardenia coronaria.
ရင်ခတ်။ ဖိၢကၵမ့ၤ. တကဉ်မံၤ။

MUSSÆNDA.

A species of mussænda with corymbs of orange-colored flowers, and a single sepal expanded into a large white leaf, is not the least interesting shrub to the eye of the curious. In Calcutta an allied species is cultivated in the gardens, but its abundance in our forests prevents its introduction into European gardens on this coast.

Mussænda Wallichii.

Mr. Parish mentions another species, if it be not the same, with another name.

Mussænda uniflora.

PSYCHOTRIA.

The genus psychotria furnishes a handsome shrub, whose small

white flowers throw a delightful fragrance on the path during a morning walk.

Psychotria.

ထဲသီး။ *(Sgau.)*

CRIMSON IXORA.

This species of ixora is very common in front plots, and is sometimes called by the European residents, "the countr ygeranium."

Ixora coccinea.

ပန်းစရိပ်။ ဖိုကဆာ့. ဖိထံမှဉ်။

WILD IXORA.

An indigenous species of ixora is frequently met with in mountains and plains whose flowers are of a much paler hue than the preceding species.

Ixora pallens ?

တောပန်းစရိပ်။ ဖိုတဆာ့. ဖိထံ။

WHITE IXORA.

A white-flowered ixora is another of our wild flowers that ought to be brought into cultivation.

Ixora alba.

PAVETTA.

An indigenous species of pavetta, with flowers resembling a white ixora, is found at Tavoy.

Pavetta tomentosa.

ယွန်မိန်ပြိဇိုး။ *(Sgau.)*

NAUCLEA.

A fragrant orange-flowered species of *nauclea* is sometimes cultivated by the natives. Its large glossy leaves afford a thick and beautiful shade, and in Indian mythology, it is one of the four shadow-giving trees that grow on mount Meru—the eugenia, the nauclea cadamba, the banyan, and the pepul. It is called *ka-dam* in Pali, and hence its specific name of *cadamba.*

Nauclea cadamba.

မအူ။ ဒမ္မ. ဝဒဲး။

There are two or three indigenous species of nauclea, with similar flowers ; and this may be of the number. Another the Burmese call taing, ထိန်။

WRIGHTEA.

A dwarf species of *wrightea*, bearing a pretty head of flowers a few inches from the ground, is abundant in the Toungoo forests. The Burmese consider the root a valuable medicine for worms.

Wrightea.

ဘုံမရာဇန်။ အိုး။

HEDYOTIS.

An attractive purple flowered shrub, is one of three or four species of hedyotis, that are found near the bases of our mountains, and is well worthy of a place in the shrubbery. Of a related species Wight wrote : "A handsome but neglected shrub, not very rare on the hills. The flowers are so much of a lilac colour, that, introduced into shrubberies, and some care bestowed on its cultivation, it might become a passing good substitute for the lilac."

Hedyotis.

CAPPARIS.

Three or four thorny shrubs with handsome fugacious white flowers, belonging to the species which produces the caper. One at Toungoo, and another on the sea-coast, bear considerable resemblance to the bramble ; while a third, from its horrid thorns, has obtained the cognomen of

Capparis horrida, Lin.

သံရစ်။ သံသက်။ Toungoo species.

တက္ကဒ္ဒံ။ Seaboard "

SAMADERA.

The low grounds near the sea coast are ornamented with a handsome shrub which is a species of samadera, and bears a rather curious flower. Like the quassia of the same tribe, its leaves are most intensely bitter, and may perhaps possesss the virtues of quassia. Wight says it is cultivated in the gardens about Batavia ; but I have never seen it out of its native jungles on this coast.

Samadera lucida.

ကသဲ။ ကသဲဇိုး။

THREE-LEAVED CAPER.

The three-leaved caper tree produces large handsome terminal heads of flowers with numerous purple stamens and white clawed petals that change to cream color.

Cratœva Roxburghii..
Capparis trifoliata.

ကတက်. ကတပ်။ ဟိန်ထး။

SHOE FLOWER.

This bold, flaming flower is extensively cultivated, and is a very good substitute for "Day and Martin's blacking."

Hibiscus Rosa sinensis.

ခေါင်ရမ်း။

CHANGEABLE HIBISCUS.

The double rose hibiscus whose white flowers deepen into red, are sometimes seen in the front plots of European residences.

Hibiscus mutabilis.

POPLAR HIBISCUS.

A yellow-flowered species has been introduced from the Madras coast, which is quite an ornamental tree. Linnæus very appropriately named it the poplar hibiscus, for it has the leaves of the poplar with the flower of the hibiscus.

Thespesia populnea.
Hibiscus populneus.

TORTUOUS HIBISCUS.

The banks of our tide-water streams are often damasked with the changeable red and yellow flowers of this large luxuriant bush, whose crooked wandering branches, crossed and locked with each other, spread along the ground, heaping the earth with its evergreen foliage.

Paritium tiliaceum.
Hibiscus tiliaceus.

လည်ညှာရှော်။ သင်ဖန်း။ ဒီဂုထံ၇. ဆိုက်ထံ။

FRAGRANT SCREWPINE.

The male flowers of the fragrant pandanus or screwpine, are exceedingly fragrant, and great favourites with the Burmese. The palm-like shrub that bears them, dropping roots from its branches, like the banyan, is a very curious plant, and not inelegant.

Pandanus odoratissimus.

ဆပ်ဆွား။ ဆပ်သွာ။ ဘျိုးဘျုး. ဆးဆွန်။

SWEET-SCENTED OLEANDER.

This well known fragrant flower adorns a few of the gardens in Maulmain, but it has not yet come into general cultivation.

Nerium odorum.

SCARLET NERIUM.

European compounds are occasionally scented with this useful shrub, whose orange-red flowers have the grateful fragrance of the pine apple.

Wrightia coccinea.
Nerium "

LAUREL-LEAVED PASSION FLOWER.

Numerous species of passion flower are seen wandering over the arbors and trellises of our sunny greens, but none exceed in

beauty and fragrance the laurel-leaved passion flower, called in the West Indies, water lemon vine, which appears to have been the first of the tribe introduced into Burmah.

Passiflora laurifolia.

အာသာဝတီ။

FŒTID PASSION FLOWER.

A species of passion flower with fœtid flowers, but very elegant moss-like involucres, though rarely noticed in gardens, may be often seen creeping over the hedges in Maulmain like an indigenous plant.

Passiflora fœtida.

MUSK PLANT.

One of the most gaudy flowering shrubs in the country is the musk plant, whose large yellow blossoms with blood colored eyes are somtimes seen bedecking European grounds, and whose seeds have been said to be an antidote to snake bites.

Abelmoschus moschatus.

ဘလူးလက်ဝါး၊ ဘဲၼဆ့ဖွေ့. ဘဲဆံဝိုး၊

ELŒOCARPUS.

At Maulmain there is seen a small tree whose handsome summit is whitened over with a profusion of white flowers. It is a species of elœocarpus, the genus which furnishes by its tuberculed seeds, beads for the Hindoo Fakeers.

Elæocarpus longifolius.

ဝါဆိုပန်း။

MONOCERA.

In the southern Provinces there is a species of monocera which bears flowers similar to the elœocarpus.

Monocera Griffithii.

ဖိုင်ရီ၊ ဝင်ဆာထံ။

ARDISIA.

There are two or more indigenous species of ardisia that are handsome flowering shrubs. One, *A. humilis*, I saw in Dr. Carey's garden at Serampore, and another I have seen in European grounds on the coast, and a third is exceedingly abundant in the vicinity of Toungoo, where it may be seen in flower a few inches high. "Its showy rose or rather light purple flowers, shining black fruit, and large bright shining leaves, make it a most conspicuous shrub." It differs from *A. humilis* only in the leaves.

Ardisia humilis.

" *Amherstiana.*

ကျွက်မအူပ်၊ လျှာ့ခြကျွန်. လွမိဉ်မိဉ်။

ROUREA.

The rourea abounds in the environs of Tavoy, where the air is often filled with fragrance from its thick snow-white flowers.

Rourea Sookurthoontee.
Cnestis monadelpha.

တလီတိ။ ဆာထွဖိ၂. ဆီဖါဝဲ၎ယဲ။

MEMECYLON.

A small blue-flowered species of memecylon bearing its flowers in compound corymbs, which contrast favourably with its shining green leaves, is interesting to the florist in this country, where blue flowers are so rare.

Memecylon tinctorium.

မြင်းချေတညက်။ တိနဲဇီးဂူ။

GREWIA.

Perhaps there is no tree more generally diffused throughout the Provinces than a species of grewia, whose terminal bunches of flowers may be seen on almost every knoll in the country.

Grewia floribunda.

မြတ်ယာ။ မြင်းတဘက်။ *(Tavoy.)*

ဖျာ. တိုးဖျာ။

COMBRETUM.

A fragrant flowered species of combretum is common on the hills near Maulmain. A straggling shrub, with winged fruit.

Combretum wightiana.

CONGEA.

In the neighborhood of Maulmain, Amherst and Toungoo, the forest scenery is often ornamented with the numerous large purple bracts surrounding the small inconspicuous flowers of a species of congea. In the distance it bears a strong resemblance to the dogwood tree of the Ohio valley when in flower. There are three different species in the Provinces, but they are all called by the same native names.

Congea azurea.
" *tomentosa.*
" *velutina.*

ကယော၊ ကယာ၎။

CEYLONESE NARAVELIA.

In the southern Provinces a handsome flowered climbing plant of the genus naravelia, belonging to the ranunculus tribe, is occasionally seen.

Naravelia zeylanica.

VIRGIN'S BOWER.

Griffith says there is one species of this northern genus in the Provinces "with simple fleshy leaves."

Clematis.

PRICKLY PEAR.

The hedge prickly pear is often seen in gardens, and its large yellow flowers are quite ornamental. The natives regard it as a species of euphorbia.

Opuntia Dillenii.
Cactus indicus.

ရှားစောင်းလက်ညှိုး။ ရှားစောင်းလက်ဝါး။
တမ၂၇ကဲ့၄. ထိန်ဒိန်ခိန်ခုန်။

WEEPING SONNERATIA.

There is a species of sonneratia in the low wet lands near the mouths of some of the rivers, well deserving of a place in our cities. It bears a strong resemblance to the weeping willow, and is one of the most graceful trees in the country. The casuarina has been removed from the coast to our compounds, and the sonneratia is quite as deserving.

Sonneratia apetala.

ကမ်ပလ။

DRAGON TREE.

Two or more species of the dragon tree, resembling small areca palms, are seen in Burmese compounds, but the most common is the one with dark purple leaves.

Dracœna atropurpurea.

ကွမ်လင်။ ယဲ. ကယဲ၊။

FRAGRANT MORINDA.

The most agreeably fragrant flowered shrub with which I ever met in the Karen forests, is a species of morinda, that has not yet found its way into cultivation. The flowers are small, in dense heads, like other members of the genus, azure purple externally, but white within; and have only four anthers, like a species described by Jack which he found on the Malay islands.

Morinda.

FRAGRANT LIMONIA.

On all the lands near the mouths of the rivers that are occasionally overflowed by tide waters, a very handsome shrub of the orange family, with a fragrant white flower, and a small fruit like

a lemon in miniature, is quite common, and ought to have a place in our garden plots.

Limonia.

VARIEGATED CROTON.

This shrub, with handsome variegated leaves, is sometimes seen in gardens.

Codlæum chrysosticton.
Croton variegatum.

CORAL PLANT.

Though a native of America, the coral plant, with its brilliant carmine corymbs is considerably diffused in Maulmain grounds.

Jatropha multifida.

BOJER'S EUPHORBIA.

This large scarlet-flowered species of euphorbia from Madagascar is very common in gardens.

Euphorbia Bojerii.

POINSETTIA.

This plant has been recently introduced into the gardens in Maulmain; and its large vermillion-colored floral leaves render it, when in flower, a very ornamental plant.

Poinsettia pulcherrima.

RANGOON CREEPER.

This elegant scandent shrub is seen trailing its long arms around our bowers and verandahs, buried in thick lively foliage, and gracefully flinging out its thousands of sweet-scented flowers which change their tint from white to rose, and with the clouds at sunset, deepen into richest crimson.

Quisqualis indica.

ဝင်းဝယ်ခွေး။

FRAGRANT PERGULARIA.

In the gardens in Maulmain, this fragrant flowered creeper is often cultivated.

Pergularia odoratissima.

MALPIGHIA.

A handsome shrub of the genus malpighia, with leaves like the holly, and nearly related to the Barbadoes cherry, is occasionally cultivated in European gardens.

Malpighia heteranthera.

ÆGICERAS.

This large shrub when in bloom is covered with small white flowers, which seem to have great attractions for the fire-flies.

In moving up the streams near the sea-board on a dark night, these trees are often seen illumined with myriads of waving brightening wings:

> "Retreating, chasing, sinking, soaring,
> The darkness of the copse exploring,"

and making them look in the deep gloom, like superb candelabra hung with living lamps.

Ægiceras fragrans ?

ဘူတရပ်။ နါကိရံ။

HANDSOME URANIA.

The yard of a Burmese merchant in Tavoy, is often visited by Europeans to look at what is deemed the most curious tree in the Provinces. It is frequently amusing to listen to the observations of the spectators that may not unfrequently be seen gathered around it on a fine evening. "It is a kind of a palm," says one, "do you not see that its trunk is precisely that of a palm?" This settles the question so long as the eyes are kept on the trunk; but another looks up and cries out, "No such thing! Look at its leaves. They cannot be distinguished from the leaves of a plantain tree." It belongs to the natural family of the plantain, but it has the trunk of a palm, and the leaves are not arranged around the stem like those of the plantain, but in two opposite rows, so that the whole head has the form of a gigantic fan. It is the only tree of the species that I have seen on the coast, and it was brought up by its owner from Penang. It is well worthy of cultivation for a curiosity.

Ravenala madagascariensis.
Urania speciosa.

CASUARINA.

The casuarinas, called beef-woods, form imposing bowers, and are the very pictures of drooping beauty. There is but one species indigenous to this coast, which is the one that has been diffused over Bengal, but the species introduced into England is the one common to the Indian Archipelago, and the South Sea Islands, called in the latter place ironwood. The wood is very hard and durable, and the Tahitians in their war-days chose it for the manufacture of their formidable, ingeniously carved war-clubs, hence they term it the club-wood. They also fashioned valuable fishing hooks from its roots. The casuarina of our Provinces is found inhabiting only the loose, sandy soil of the sea-board, and never inland. In general outline it resembles the pine, but it is of a more slender figure, and more elegant in appearance. It is a remarkable tree, growing eighty feet high, and spreading out without a leaf of covering; but its numerous fine knotted branchlets, mantled with brilliant green, and hanging in drooping bunches, or floating out lightly upon the breeze like

long skeins of green silk, adorn it with the most graceful drapery, and make it one of the most desirable trees for embellishing a Tenasserim park.

Casuarina muricata.

ထင်းရူး။ ရှိုး. ၊ ဆိ။

TENASSERIM BANYAN.

Few persons are aware that we have a species of ficus in the Tenasserim Provinces which has the habit of dropping roots from its branches that root in the ground, and become trunks as large as the parent tree, to an extent nearly equal to the famous banyan. It escapes notice because it developes itself in the greatest perfection near the mangrove swamps, and some who see it call it a mangrove; and it never grows spontaneously except on the banks of tide water streams. It is not found, however, in the mangrove lands which are under water every tide, but above that belt where heritiera trees and their associates show themselves, on land that is inundated by the spring tides only. Specimens are seen farther toward the interior, as on the banks of the Gyaine, but on the low banks near the sea between Tavoy and Mergui, the trees often form labyrinths from which I have more than once found it difficult to extricate myself. It is rather remarkable that the tree has never been introduced into our towns, where it would be quite an ornament to the sides of our public walks. In a few instances I have seen the tree planted on high ground, one at a village near the sea-coast west of Tavoy, where it appears to grow very well. A very nearly allied species Wight says, is "much used as an avenue tree" in southern India. Perhaps our tree will be referred to the same species, *F. Benjamina*, but though much resembling it, there is still a difference that appears to be constant, and therefore specific. The *Benjamina* has the fruit smooth on short stems, while the Tenasserim tree has rough fruit and stemless. There is a difference too in the leaves, but it is only slight, and not alone sufficient to establish a species. Wight, in uniting *F. nitida* with *F. Benjamina*, characterizes the united species thus:

"*Ficus Benjamina*—leaves oval and obovate, obtuse, polished; fruit axilliary, paired, smooth."

The Tenasserim tree may be thus characterized:

Ficus Benjaminoides—leaves oval, suddenly acuminate, smooth, polished above; fruit axilliary, paired, sessile, rough.

ညောင်ချေထောက်၊ ညောင်အုမ်။ ညောင်ထမ်။
ချိုးဆိုးခွုး. ၁ရှလယါ. ချာဉ်စိုးကွိုး။

ASPEN-LEAVED PEEPUL.

The peepul is quite an ornamental tree, but very scarce, tho' usually supposed to be one of the most abundant. The peepul

of the residents, but not of the Burmese who recognize the distinction, is an allied but different species of ficus. It is the most sacred of trees with the Budhists, for it was under this tree that Gaudama slept, and dreamed that his bed was the vast earth, and the Himalaya mountains his pillow, while his left arm reached to the eastern ocean, his right to the western ocean, and his feet to the great south sea. This dream he interpreted to mean that he would soon become a Budha; and it was while seated beneath the same tree, that the dream was verified. He vanquished the forces of Mara,* the Indian cupid, and became divine.

Ficus religiosa.

ညောင်ဗောဓိ။ ဗောဓိ ပညောင်။ ညောင်ဗုဒ္ဓဟော။
ချိုးမူ. ချိုးဒွဲ. ချိုးဒိုး. ချုၢ်မုၢ်။

HEART-LEAVED FIG.

This is the tree which usually supplies the place of the peepul in the public places, and in the neighbourhood of religious edifices. "It approaches," says Roxburgh, "nearest to *F. religiosa*, of any species I know; yet it is easily distinguished from it by the leaves being narrower in proportion to the length, with much shorter points, and instead of the lobes forming a sinus at the base there is a small degree of projection at the insertion of the petiole. And in the second place by the fruit being perfectly round and not, as in *religiosa*, vertically compressed.

Ficus cordifolia.

ညောင်ကျတ်။ ညောင်ကျွတ်။ ချိုးအွဲ. ချုၢ်မုၢ်။

CYCAS.

A very ornamental species of cycas is quite abundant on the mountains of Toungoo. The stem, like that of a palm some twenty feet high, is crowned by a wide spreading foliage with a large cone in the center resembling a pine-apple; so that the whole suggests a pine-apple plant engrafted on the top of a palm. Linæus classed the plants of this tribe with the ferns, an opinion which the Karens still entertain; regarding this tree and the tree fern as species of the same genus. Botanists, however, now deem them more nearly related to the firs than to either the ferns or the palms.

Cicas circinalis.

မူတိုင်။ ကဆိုး. ကၢ်။

PALMYARA PALM.

The palms undoubtedly constitute the noblest tribe of plants in the whole vegetable kingdom; and there is a large number

*မာရိနတ်။

of species indigenous, and cultivated in the Provinces. Excepting the areca and cocoanut, the palmyra palm is more generally diffused than any other.

Borassus flabelliformis.

တမ်း၊ တၤ. ထိဒၢ။

WILD PALMYRA.

The Provinces yield an indigenous palm which the natives call the wild palmyra. It has the fruit of the palmyra, but the leaf differs from it sufficiently to constitute it another species.

Borassus.

တောထမ်း။ တၤမ့ၤ. ထီမံၤ၊ ပှၢ်ရွၢ်။

TALIPAT OR LARGE FAN-PALM.

Griffith met with trees in flower at Mergui, which he thought belonged to this species, but "not having access to a complete copy of Martius' Palms," he could not speak with certainty. For the same reason, other trees that I saw in Tavoy, must be stated as probably talipat palms.

Corypha umbraculifera.

ပေ။ ရၤ. ပှၢ်။

BOOK PALM.

Specimens of the palm, the leaves of which are commonly used to write on instead of paper, are not infrequent in the neighborhood of religious edifices. I think there are two species.

Corypha Taliera.
" *elata.*

ပေ။ ရၤ. ပှၢ်၊

DATE PALM.

I have seen young date trees raised from the seeds of the dried dates that are imported, and there is no apparent reason why the tree might not be cultivated.

Phœnix dactylifera.

စွန်ပလွန်။ စီၤပလီၤ. စိဉ်ပလိဉ်။ နိုဉ်ကျိုဉ်စဲဝ်။

WILD DATE PALM.

Major Phayre informed me that he saw a wild date palm near one of the kyoungs in Amherst Province ; but though so abundant on the Hoogly, this is the only one I ever heard of in the Provinces.

Phœnix sylvestris.

THE MARSH-DATE PALM.

On the low islands in the rivers, and on the shores which are inundated with the highest tides, the marsh-date palm abounds,

a small tree about twenty feet high, no thicker than a walking cane; whose fruit looks precisely like a bunch of dates, but it is not edible.

Griffith says: "It is well worth cultivating on account of its elegance, and its being adapted for bank scenery."

Phœnix poludosa.

သင်ဘောင်၊ ဘလုမ်။ *(Tavoy.)*

ဘီ၊ဝလိ၊. ဘီဝလူ။ ဘီဝန္ဓု။ ဘီကလဲ။

WILD PALM.

There is a large stately palm very abundant in the Karen jungles, the leaves of which the Karens use for thatch.

Livistona.

ထမ်းမြောက်လူ။ လိ၂, လိန်။

KAREN GABBAGE PALM.

A wild palm is found in many parts of the Provinces, which the Karens often cut down for the unexpanded bunches of young leaves found in its summit, and which has the taste of cabbage. The tree does not, however, belong to the same genus as the cabbage tree of America, but from the imperfect specimens of its fructification that I have seen, appears nearly related to Griffith's genus,

Macrocladus.

ရင်ချင်း၊ ရှာစောင်း။ ဝူ၂. ဟိန်။

WALKING-CANE PALM.

The islands of the Mergui Archipelago yield a small palm, the stems of which are used for walking-sticks, like "Penang lawyers"; and is probably a species of the same genus that produces those famous canes.

Licuala?

STEMLESS LICUALA.

This is a nearly stemless palm described by Griffith as remarkable for its dark green foliage. He met with it in the forests south of Mergui.

Licuala longipes.

TREE RATAN.

An arboreas species of ratan common in the jungles, Griffith justly terms, "a very elegant palm."

Calamus arboresccens.

ကျိုမ်။ ဝ့. ဝ့်၊

RATAN SAGO PALM.

The sago palm has not been discovered in the country, but Griffith describes a palm from the Mergui islands, which he nam-

ed the ratan sago palm. "It appears," he says, "to be osculant, between calamus, sagus, and zalacca, having the habit of the former, the inflorescence of the second, and in some measure the seed of the last genus;" so that while it resembles a ratan, it has flowers like the sago palm.

Calamosagus laciniosus.

BETEL PALMS.

The palm which produces the betelnut is extensively cultivated both by the Burmese, and the Karens. It thrives luxuriantly, and a grove of betel palms, with their slender, cylindrical stems peering fifty or sixty feet upward, waving their green plumes, and fragrant flowers, presents a scene of sylvan beauty rarely to be excelled under our tropic sky.

"Thus winds our path through many a bower
Of fragrant tree and giant flower—
While o'er the brake so wild and fair
The betel waves his crest in air;
Yet who in Indian bowers has stood
But thought on England's 'good greenwood;'
And blessed beneath her palmy shade
The hazel and her hawthorn glade;
And breathed a prayer, (how oft in vain!)
To gaze upon her oaks again."

Areca Catechu.

ကွမ်သီး။ ၃၄. ဝဲး။

SELECT ORNAMENTAL HERBACEOUS PLANTS.

The number of annuals and herbaceous flowering plants in the country, though considerable, is not proportionate to the number of trees and shrubs. For the accompanying notices, I have selected fifty of those possessing most interest to the florist.

ELEGANT KŒMPFERA.

Under every shady tree in Máulmain may be seen during the rains, a pretty little pink flower resting on broad green leaves, which Wallich appropriately named "the elegant kœmpfera."—Though so abundant at Maulmain, it is scarcely seen in the southern provinces.

Monolophus elegans.
Kœmpfera elegans.

ကွမ်ကတိုး။

WHITE KŒMPFERA.

During the dry season, a white-flowered species of kœmpfera with a yellowish limb, is often seen lifting its crocus-like flowers without a single leaf, on the most arid spots in the jungles.

Kœmpfera candida.

ပန်းဥဖြူ။

FRAGRANT KŒMPFERA.

This is the finest species of the genus, and is cultivated by amateurs for its beautiful sweet-scented blossoms. A nearly related species is indigenous in the Karen jungles.

Kæmpfera rotunda.

မြေမန်းတောက်။ ဒီဂံဒံ၂. ဒီဝံဉ်ဒံဉ်။ ဒီရံးဒံဉ်။

MELASTOMA FAMILY.

Melastoma is a family of gaudy plants abounding in both India and America. Four genera, *Melastoma, Osbeckia, Sonerila*, and *Medinilla*, are all represented in Burmah by handsome flowering plants.

MELASTOMA.

A species of melastoma with large gaudy purple petals, and long yellow stamens, is a common weed. Its calyx opens like a lid, and bears a fruit which in taste and flavour strongly resembles the blackberry of temperate regions. In Bengal the same plant is cultivated as a garden flower, but it does not compare with our wild plant.

Melastoma malabathricum.

မျှစ်ပျဲ။ ၁၂၁၂၇၅၂. ထံပိဝ်ဖး။

OSBECKIA.

A pretty species of osbeckia having the general appearance of the above, except that the stamens are all of equal length, is in flower on the Maulmain hills in August.

Osbeckia.

SONERILLA.

One of the prettiest annuals in the country is furnished by a species of SONERILLA. Its bright purple blossoms peeping up in the grass attract the attention of the most casual observer. Its three petals and three stamens easily distinguish it from the preceding genus which has a four-fold division. One species is very common in the neighborhood of Tavoy. The same or a related species is equally abundant on the mountains of Toungoo; and Mr. Parish writes that the species he has met in the Tenasserim Provinces, is

Sonerilla elegans.

GLOBBA.

On shady banks, where violets grow in England, the pretty orange-flowered *globba* is common. Its long curved filament "ornamented with a large, orange-coloured two lobed lip, or apron," attracts the attention of most observers. Four, or more,

related species are found scattered between Mergui and Toungoo. The Burmese called it *padaing-gno*, " weeping crinum."

Globba.

ပဒိုင်ငို။

GLORIOSA.

One of the most curious flowers in the country is the gloriosa. " Gloriosa," says Louden, " on account of the glorious colours of its flowers, and the elegance of their form. This is a splendid and curious genus." The flower, as large as a lily, hangs down, and the petals, stamens and style, all turn and grow up like a flower turned inside out. Then to complete the oddity, the leaves prolong their extremities into tendrils, and the plant walks on its toes.

Gloriosa superba.

ဆီဖီးတောက်။

TUBEROSE.

" The tuberose with her silvery light," a plant of the lily tribe, which has been introduced into India from Mexico or South America, is cultivated very extensively by the Burmans and in many English gardens. The flower has a delightful fragrance, and throws out its odours strongest at evening. Dr Pickering of the United States exploring expedition is inclined to the belief that the tuberose is an Indian plant. He writes : " According to Beckmann, the tuberose was procured from the East Indies by Simon de Tovar, prior to A. D. 1594, and was communicated to Bernard Paludanus who published a description in Linschoten's voyage. It was seen by Hasselguist, Forskal, Delile, and Clot-Bey, cultivated in the gardens of Egypt."

Polianthes tuberosa.

နှင်းပင်။ ဖိပစီး။

GARLAND FLOWER.

The garland flower, a species of hedychium, but regarded by Europeans as a lily, is much cultivated by both natives and foreigners. The yellow and white varieties are both common. "This to me," says Roxburgh, " is the most charming of all the plants of this natural order that I have met with, the great length of time it continues to throw out a profusion of large, beautiful, fragrant blossoms, makes it particularly desirable.

Hedychium coronarium.

လမ်းသေး။ ဖြဲပလူဂျီမိ. ဗိဝ်ဟျုဝ်ဟိန်ခိန်။
ဗိဝ်လီမှန်။

NARROW PETALLED GARLAND FLOWER.

A very fragrant species of hedychium with long narrow petals,

and an epiphytic habit is often seen in Tavoy. The species is not described in any books to which I have access.

Hedychium.

သမ်ခကိယမ်သေး။ ဖိုပလုပ္ခုခံ၊ ဗိဝ်ဖျုဝ်ခွဉ်ခံ။

BGHAI GARLAND FLOWER.

An exquisitely fragrant species of garland flower is found on the Bghai mountains, with a sulphur coloured flower; that is probably a new species.

Hedychium.

WATER-LILY.

The water-lilies are very abundant and very beautiful; white, red and blue. The Burmese call Barclaya kya-khoung-loung, or the "bell water-lily," from the shape of the flower, the petals forming a tribe around the stamens.

Nymphæa.

ကျာဖြူ။ ကျာနီ။ ကျာညို။ ကျာခေါင်းသောင်း၊

SACRED BEAN PLANT.

The flower of this plant being much like a water-lily, it is usually regarded as one, but the fruit is so different that botanists have placed them in different natural families.

Nelumbium speciosum

ကျာ။ အကိုး. တကီ၊

ORNAMENTAL CRINUM.

We have no lilies in the country, but they are well represented by the crinums, which Europeans usually denominate lilies. A very large petalled species, of which there are two varieties, is much cultivated in gardens, and is quite an interesting plant.

Crinum ornatum.

ပဒိုင်။ ဖီ၊ယာ. ဖီဒွဉ်ညါ။

LARGE FRUITED CRINUM.

There are two gigantic species of crinum indigenous in the low grounds near the sea coast, one of which is the large fruited crinum, and the other, which is nearly related to it, bears a large bunch of fragrant flowers and has been recently introduced into our gardens.

Crinum macrocarpon.

ပဒိုင်းကြီး။ ဖီ၊ယာ၊ဗ၃ဒိ၂. ဖီဒွဉ်ညါ၊ဗးဒိဉ်။

WATER CRINUM.

Many of the clear mountain streams, where they rest their wa-

ters in little crystal lakes, are covered with a fragrant and beautiful species of crinum with long narrow leaves.

Crinum.

ရေပမိုင်း။ ဖီ၇ယ၇ထံ၇. ဖီဒွန်ညါထံ။

TIGER LILY.

A showy yellow and orange flower, whose petals are spotted like a leo ard's skin, and belonging to the iris tribe, is very commonly cultivated by the Burmese as well as by Europeans.

Pardanthus chinensis.

သစ်စာ။

EURYCLES.

A flagrant white flowering bulb of the amaryllis tribe, and of the genus eurycles, is not uncommon in native gardens.

Eurycles amboinensis.

လမင်း။ နေမင်း။ ပါ၎စါ၁း။

ZEPHYRANTHES.

One or two species of zephyranthes of the amarylis tribe which I introduced from Dr. Carey's garden at Serampore, grow very very well, and form handsome border flowers.

Zephyranthes tubispatha.

GLOBE AMARANTHUS.

The globe amaranthus is often cultivated by Karens and Burmans, as well as by Europeans.

Gomphrena globosa.

မညှိုးပန်း။ ဖီစိုပ။ ဖီတရူး။

COCK'S COMB.

This common annual all over the world, is often seen in European gardens, and is sometimes cultivated by the natives. The Burman name signifies cock's comb, like the English.

Celossia cristata.

ကြက်မောက်။ ဖီဂိုဘိန်ခိန်။

PRINCE'S FEATHER.

This is the most elegant plant, when cultivated by the Karens, that I ever saw of the amaranth tribe. It is not the prince's feather of English writers, *Amaranthus hypochondriacus,* but a species of celosia which bears a long pendulous drooping panicle or plume like Roxburgh's *C. cernua,* but it is a different species.—

There are two varieties, one with bright yellow flowers, the other with red.

Celosia.

ကြက်ရက်ဝါ။ ဖြာဘူ. (*flower yellow.*) ဖြဘီ။
ကြက်ရက်နီ။ ဖြာဝိုး. (*flower red.*)
ဖိဂိုးလိုးစဲး။

SENSITIVE PLANT.

Where "garden flowers grow wild," near deserted habitations, the pink globular heads of the sensitive plant may be often seen peeping through the grass. It is cultivated by the Burmese, and is quite naturalized.

Mimosa sensitiva.

ထိကရုမ်၊ နိုင်ဘိုင်ယင်း

CHRISTMAS DAISY.

A species of aster, or christmas daisy, is seen occasionally in European gardens.

FEVERFEW.

Feverfew, a gaudy flowered annual, usually denominated a shrysanthemum, but which the botanists have removed to another genus, is often seen in gardens in Maulmain.

Pyrethrum indicum.

COREOPSIS.

The bright yellow flowered coreopsis, of the same tribe as the above, which derives its name from the resemblance of its seeds to an insect, is not uncommon in gardens.

Coreopsis.

PERIWINCLE.

Periwincles, both the red and white varieties, are frequently cultivated by natives as well as Europeans.

Vinca rosea.

သဿီာမညိုးပန်း။ ငွေပန်း။ ဆေနစ်ရာသေပန်း။

PLUMBAGO.

Three different species of plumbago, the red, the white, and the blue flowered, are common in gardens; and the first two are cultivated by the Burmese for the vesicatory power of their roots.

Plumbago rosea, (flower red.)

ကင်ချုပ်နီ။ စီးထမူဂိုး. စီတမူ။ စီလမူ။
စီဝမူဂိုး။

Plumbago zeylanica, (flower white.)

ကင်ချုပ်ဖြူ။ စီးတမူဒွေး. စီတမူဝါ။

Plumbago capensis, (flower blue.)

FOUR O'CLOCK.

The red, white, and yellow varieties of this pretty annual are all cultivated by the Burmese as well as by Europeans, who often call it the jalap plant. The true jalap, is however quite a different plant, a species of ipomæa.

Marabilis Jalapa.

မည်စည်။ မည်စူ။

COSTUS.

An indigenous species of the spirical costus is very abundant, but I do not find it described in the books to which I can refer.

Costus argyrophyllus?

ဗျင်တောင်ဦ။ ပလံတောင်ဝေး။ ဆူလဲ့. ဘူလ့။

BALSAM.

The common balsam, or touch-me-not, *Noli me tangere*, is very common both wild and cultivated.

Impatiens Balsamina.

ပန်ရှစ်။ဒန့်ဒလက်။ ဝိုစူ၂မ့၂. ဝိုစုခ့ဉ်ပြီဒိုး။

NEILGHERRY GRASS.

This is a species of lobelia, which is unknown on the Neilgherries, its name notwithstanding, and probably came from Java. Wight, writing on the lobelias, says: "There is a small cespitose species much cultivated in pots, by amateurs, under the strange name of Neilgherry grass. I suspect the *Lobelia succulenta* of Blumes, a Java plant."

RED-KAREN LOBELIA.

The genus lobelia, Loudon says furnishes "some of our most splendid herbaceous plants," and one of the most elegant wild flowers in-the Red Karen country is a species of lobelia that lifts its large white nodding plumes high above the tallest grass. I have occasionally met with the same plant on the mountains of Toungoo, but no where so abundant as in Karenee. Wallich met with *L. trigona* at Prome, but that is a small plant and the flowers are pale blue. It differs from all the species described in any of the books to which I can refer.

Lobelia.

TOUNGOO PASSION FLOWER.

Dr. Brandis met with a white passion flower on the hills of Ban-ga-lay, nearly three thousand feet above the sea.

Passiflora.

IVYWORTS.

A plant with an enormous and curiously scollop leaf, is common at Toungoo, which Dr. Brandis refers to the genus Hedera

that produces the ivy. Its peculiar leaves render it an object worthy of cultivation, and assimilate it to *gunnera*, a related genus of ivyworts, with leaves eight feet broad.

Hedera.

GENDARUSSA.

An indigenous species of gendarussa is often planted for borders around our gardens.

Gendarussa vulgaris.

ဗဝါနက်။ တလ၄ဘျာ့. တလ။ဘးဘူ။

BRYOPHYLLUM.

This curious flowered plant with a leaf like the house-leek, was introduced into India by Lady Clive, from the Moluccas, and has been so naturalized on this coast, that it may be sometimes seen growing around old pagodas like a wild plant.

Bryophyllum calycinum.

ရွက်ကျပင်ပေါက်။ ဒံ၂ဓိဝိ. ကဝံဉ်ကိုင်စိုင်။

INDIAN SHOT.

Both the red and yellow varieties of indian shot are often seen in gardens, and the first is much cultivated by the Burmese for the seeds which they use for sacred beads.

Canna indica.

ဗုဒ္ဓသရန။ ဖိုပလုယေ. ဖိုဝ်ဖျုင်ထက်။

HOLLY LEAVED ACANTHUS.

Every muddy bank is relieved by crowds of a handsome blue flowered plant with leaves like a holly, and hence called the holly-leaved acanthus. The Burmans say its roots are a cure for the bite of poisonous snakes.

Acanthus illicifolius.

ခရူး။

PONTEDERA.

The margins of many wild jungle streams are pimpled with a small species of the pontedera.

"That bonnie wee flower all wild in the wuds,
Like a twinkling wee star among the cluds,
Which opens its cups sealed up in the dew
And spreads out its leaves of a beautiful blue."

Pontedera vaginalis.

ထယိပကောက်။ ပနါခ၂မ့၂. ပနှါခိုဉ်မှဉ်။

A much larger species is found in the neighborhood of Rangoon and Toungoo.

Pontedera dilatata.

ပတောက်ကြီး။

LUDWIGIA.

In stagnate water, a species of ludwigia which bears a pretty flower, is quite common.

Ludwigia parviflora.

BEGONIA.

A pretty little annual, a species of begonia, is common in the neighborhood of both Tavoy and Maulmain.

Begonia sinuata.

XYRIS.

A species of xyris with conspicuous yellow flowers on imbricated scaly heads, is often seen in the paddy fields.

Xyris indica.

SPIDER-WORTS.

Several species of spider-worts are abundant. One, a creeping species of commelyna may be often seen trailing up the sides of fences. Another with blue flowers like the former, but with a different habit, is sprinkled among the grasses at almost every door. It belongs to the genus aneilema. There are also one or two other common species, but I do not find them described.

Mr. Parish has met with two species of *Tradescantia.*

Commelyna cæspitosa.
Aneilema herbaceum.
Tradescantia axillaris.
" *imbricata.*

FLAGELLARIA.

A species of flagellaria is often seen, and is easily recognized by the tendril it puts forth at the end of its leaves.

Flagellaria indica.

LORANTHUS.

Many of the trees are covered with different species of the parasitical genus loranthus, so abundant in most tropical climates; and the numerous small red flowers of one or two species in our forests are quite ornamental.

They are sometime mistaken for orchids, from which they are readily distinguished by their numerous stamens.

Loranthus.

ကျီးပေါင်း။ ၁၃း။

SUNDEW.

There is frequently seen a delicate flower, so small that it is passed unnoticed by most observers, which is a species of drosera, that curious genus of the sundew tribe, which produces Venus' fly-trap. There are two different species at Tavoy.

Drosera indica.
" *pectala.*

THE FRAGRANT ARUM.

This is a most singular plant. It has a stem one or two feet high and six inches in diameter, resembling a low palm, while its leaves are gigantic cabbage leaves three or four feet long by two or three wide. The flowers are said to be fragrant. The natives cultivate it not for food, like the other species of arum, but, as they say, for medicine.

Arum odorum.

ဝိမ်မတောရု။

RIBBON-LEAVED PINE APPLE.

This is a very ornamental variety of the pine apple that has been introduced from Malacca.

Ananas striatifolia.

PARASITICAL INCARVILLIA.

This is an epiphytical plant with flowers resembling the foxglove; and when in bloom it is a great ornament to the trees on which it grows, putting forth large, pendulous brilliant blossoms. It is common at Tavoy, but was not known in Maulmain until I introduced it a few years ago.

Æschynanthus parasiticus.
Incarvillia. "

CINNABAR COLOURED ERANTHEMUM.

On the sides of some of the limestone cliffs in Amherst Province this bright orange-scarlet flower is often seen; and it would be quite an addition to our gardens, in which it has not yet found a place, although it is represented in Wallich's rare Indian Plants.

Eranthemum cinnabarinum.

BLUE ERANTHEMUM.

In the Toungoo forests a beautiful blue flowered species of aranthemum is abundant in some localities and would be an ornament in our gardens.

Eranthemum Sp ?

GOAT-FOOTED IPOMÆA.

On the sands of the sea shore, this large red-purple flowered species of ipomæa is abundant.

Ipomœa Pes capræ,
Convolvulus "

ပင်လယ်ကစွန်း။ နဲ၂စ ဗွၢပ့လဲ၂. ဟူကလၢ်မံး။

TIGER-FOOTED IPOMÆA.

This species of ipomæa with large palmated leaves is not uncommon.

Ipomœa Pes tigridis.

ARROW-HEADED IPOMÆA.

There is an elegant little twining species of ipomæ, with arrow-headed shaped leaves. The corolla is cream-coloured with a purple eye. It is in bloom in the hedges of Maulmain at the close of the rains.

Ipomœa.

BONNET IPOMÆA.

In October, as soon as the rains close, a pretty little twining species of ipomæa is seen blushing through every hedge and bush. It is peculiar for its concave bonnet-shaped involucre, in the midst of which half a dozen tiny blossoms hide their rosy lips.

Ipomœa pileata.

MOON FLOWER.

A large flowered species of ipomæa whose snowy blossoms open at sunset and shut at daylight, is sometimes seen carried over arbours and pandols on this coast. It is

——" the white moon-flower, such as shows
On Serendib's high crags to those
Who near the isle at evening sail,
Scenting her clove trees in the gale."

Calonyction Roxburghii.
Ipomœa grandiflora.

TOUNGOO MOON FLOWER.

In the Toungoo forests is a large creeper of the convolvulus tribe with a flower precisely like the moon flower, but a trifle smaller. It is very abundant on the banks of some of the streams, and very ornamental.

Calonyction ?

Another species with the same English name is occasionally seen in European gardens.

Calonyction speciosum.

JASMINE ROUGE.

This beautiful little creeper which the French and Burmese call red jasmine, the English, China creeper, and the botanists quamoclit or dwarf bean, is quite naturalized throughout the Provinces. I have adopted the French name as being both more descriptive and euphonious than either of the others.

Quamoclit pennatum.
Ipomœa quamoclit.

မြတ်သေးနီ။

HAIRY LETSOMIA.

A large red flowered creeper of the convolvulus tribe, and genus letsomia, is seen during the rainy season on almost every hedge.

Letsomia setosa.

နွယ်နီ။ ခွဉ်စံဉ်ဒိးဆူဉ်။

THUNBERGIA.

A large creeper with azure flowers belonging to the genus thunbergia is a conspicuous plant in the forests. I do not find the species described in any of the books to which I can refer.

Thunbergia.

HOLY BASIL.

The basil tuft so often seen about the temples of Hindus,

——————"that waves,
Its fragrant blossoms o'er their graves,"

has been so generally introduced that it is not less common in the neighborhood of Karen houses.

Ocimum sanctum.

ပင်စိန်း။လှုပ်။ ကဖျိုး. ကဘျုဖိ။ကဖျိုဉ်။

AIR PLANTS.

Burmah abounds in air plants, or orchids, most of which grow on trees and are epiphytes, but not parasites, as they are often, by a misnomer, denominated. The flowers of some of the species are great favourites with the natives, and are sought after to adorn the hair. The Burman books say that the trees around King Wathandria's hermitage were covered with orchids, and that after being plucked they would retain their fragrance seven days.

Nearly every species is worth more in England than its freight overland: and they are often exported. It is usually supposed that the plants require air on their passage, consequently the boxes in which they are packed are often perforated, or they are

sent in baskets. But this is an error. The closer they are confined, the better will be their condition on reaching the place of destination.

A gentleman in England to whom I sent a box of orchids a few years ago, remarked: "The plants were in as good condition, as any I ever had from the east; in fact had it been the dry season when you packed them, I doubt not all would have come in full health, and you cannot possibly do better in future than pack them in *a precisely similar manner*. Their excellent condition convinces me that a great many of my losses amongst those I have had from the Botanical Garden at Calcutta, have been caused by the fact of their being packed in bamboo baskets instead of close boxes,—a close box seems *essential*."

There is no good reason why this noble, graceful tribe of plants should be so much excluded from our compounds, and left to fling their beauty upon their native wilderness of flowers, "waste their sweetness on the desert air." If generally introduced, they might be a rich acquisition to our tropical parterres.

Capt. Taylor while in Toungoo collected more than sixty species, the flowers of which he drew and coloured most beautifully true to nature.

CHARMING DENDROBIUM.

The genus dendrobium furnishes fifteen of more known species of air plants on this coast. The one considered most interesting, botanists have named the "charming dendrobium," the flowers of which are white, with a yellow lip, four or five inches in diameter, and exquisitely fragrant. It is a choice flower with the Burmese, and grows naturally and luxuriantly in the environs of Maulmain. Roxburgh mentions April and May as the time of flowering, but I have observed the plant blossoming in March, and the flowers are brought into town throughout the whole rains down to the close of October. Indeed it may be seen whitening under the emerald foliage of the groves nearly six months of the year. The Burmese call it the "silver flower." I have not met with it at Toungoo.

Dendrobium formosum.

ငွေပန်း။ ထိုးထိုး. ဒိထိးထိုး။

PURPLE DENDROBIUM.

A species of dendrobium with small purple flowers, the lip tinged with orange, is seen garnishing the mango trees in the neighbourhood of Maulmain. The flowers are peculiar, being in long racemes all on one side of the stalk. Lindley was not aware of its existence in Burmah and only quotes it as found in the Straits of Malacca and the neighbouring islands. He also says,

that it flowers in June and July; but on this coast, March and April are the months in which it is in full bloom.

Dendrobium secundem.

သစ်ခွပန်း။ ဖြာထိုကိုး. ဖိတိုင်ကိုး။

YELLOW DENDROBIUM.

Two pretty yellow flowered species of dendrobium are more rare than the purple, but they are not uncommon in the Karen jungles, from Tavoy to Toungoo.

Dendrobium Pierardi.
Dendrobium aggregatum.

သစ်ခွပန်း။

WHITE BLOOD COLOURED DENDROBIUM.

Dendrobium albo sanguineum is not uncommon at Toungoo. The flowers are more than three inches broad; the ground colour yellow-white with two large blood-coloured blotches on the lip, and the edges of the petals are tinged with pink. Altogether it is a very handsome species.

Mr. Parish writes from Maulmain: "I have at this moment a beautiful dendrobium in flower, nearly four inches across, of a cream white and a trace of purple on its side. The lip is blue inside, and it has two lovely deep blood-red spots at the base.—Can this be *D. albo-sanguineum*?"

WHITE DENDROBIUM.

A species with a small snowy flower is very abundant, but has less to recommend it than either of the preceding.

Dendrobium cretaceum.

TAPER-LEAVED DENDROBIUM.

An orchid with a filiform tapering leaf is frequent in the suburbs of Maulmain, and though I have never met with it in blossom, an English botanist says it is the taper leaved dendrobium, which Lindley knew only as a New Holland plant.

Dendrobium teretifolium.

SPOTTED SACCOLABIUM.

One of the noblest orchids in the country belongs to the saccolabium, or bag-lipped genus; the lip forming a bag, or spur. The flowers are numerous, white, spotted with rose-violet, and stand on little pedicils all around the stalk so as to form an elegant plume sometimes a foot long, which give the trees on which they grow a most princely appearance. They are profusely multiplied in the neighborhood of Maulmain, and are highly valued in England.

Saccolabium retusum.
" *guttatum.*
Acrides guttatum.

RED SACCOLABIUM.

Another species of the same genus with rosy flowers, is also very handsome and quite abundant.

Æceoclades ampullacea.
Saccolabium rubrum.
Aerides ampullaceum.

Lindley says it can scarcely be distinguished from *S. amullaceum* of Wallich's catalogue.

FRAGRANT AERIDES.

The genus aerides furnishes one of the most fragrant of orchids, but it is not very abundant in our forests.

Aerides odoratum.

FRAGRANT BOLBOPHYLLUM.

Perhaps the most highly valued of the orchid order among the Burmese and Karens, is the sweet-scented bolbophyllum, which Karen youths wear in the lobes of the ear, and maidens in their hair. It abounds in almost every part of the jungles, throwing down delicate straw coloured racemes over the rough gray bark of old lagerstrœmias—emblems of childhood in the arms of age.

Dr. Thomson told me that it has been removed to another genus.

Sunipia.

တစည်းပန်း ဖိုရမူးရှာ. ဖိုရှာ်ဃါ။

TOUNGOO ORCHID.

At Toungoo is an exquisitely fragrant orchid which bears its white flowers, that turn orange by age, at the summit of a false bulb.

Balbo phyllum ?

CAREY-BOLBOPHYLLUM.

This is a very common orchid in the vicinity of Maulmain, easily recognized by a long leaf at the apex of a false-bulb, and by its small purplish flower.

Bolbophyllum Careyanum.

သစ်ခွပန်း။

ERIA.

A species of eria is also one of the most abundant of our epiphytes, but the flowers are small, and have little to recommend them.

Eria obesa.

PHOLIDOTA.

In the suburbs of Maulmain, a white flowered species of pholidota is not rare.

Pholidota articulata.

သစ်ခွပန်း။

TRIAS.

Many of the mango trees have a species of trias growing on them, the smallest plant of the orchid tribe that I have seen.

Trias oblonga.

HABENARIA.

There is an elegant species of habenaria in the Tavoy forests; and several other species of the same genus are scattered over the Provinces.

Habenaria acuifera.

YELLOW FLOWERED HABENARIA.

On the sea coast at Monmagon, I met with a yellow flowered species of *Habenaria*. The plant is a foot and a half high, the leaves six inches long by three fourths of an inch wide.

Habenaria.

PERISTYLUS.

An elegant terrestrial orchid with snowy blossoms is occasionally seen, which belongs to the genus peristylus.

Peristylus.

GEODORUM.

Three other terrestrial species are members of the genus gendorum.

Geodorum candidum.
" *pallidum.*
" *appendiculatum.*

ဆင်ကါလာကနီဒီ။

VANILLA.

Dr. Falconer discovered, while on his visit to the Provinces in 1839, a new species of vanilla, but its specific name and description have not yet transpired.

Vanilla.

TOUNGOO LADIES SLIPPER.

On the very summit of the water-shed east of Toungoo, I met with a large elegant species of *cypripedium*, or Venus' slipper, belonging to a tribe remarkable among the orchids for having two

anthers. The slipper or lip is two inches long by an inch and a half across, and the whole flower is of an orange-green hue. This is the only species of the tribe that has been found in Burmah; and so far as I can find is not described in the books.

Cypripedium.

TENASSERIM LADIES SLIPPER.

Mr. Parish writes me that he has recently found two other species of *cypripedium* in the Tenasserim Provinces.

FERNS.

The ferns are among the most curious objects in the vegetable kingdom, but until recently their investigation had been almost entirely neglected, and our knowledge was confined to some twenty species. Mr. Parish is now directing his attention to this branch of our flora, and has already collected more than one hundred and fifty species, many of which have been determined by Sir W. Hooker, and the results of his labors will be found in the catalogue which Mr. Parish has kindly communicated for this work.

TREE FERN.

A tree-fern is very abundant in Toungoo, but rare in the southern Provinces. Griffith found the same species in Assam.

Polypodium giganteum.

မူတိုင်။ ကဆိုး. ကၢ်။

SILVER FERN.

The most delicate fern in Burmah is perhaps a species of silver fern that abounds on the old walls of Toungoo. It is not the silver fern which belongs to the genus *gymnogramma.* That has the fructification all over the frond. Our Toungoo species has the fructification confined to the margin, but the center is covered with a white pubescence that looks like frosted silver.

Nothochlæna argentea.

CLIMBING FERN.

One of the most elegant climbers in the country is a terrestrial species of fern, easily recognized by its habit of running over other plants, and by the fringed margin of its leaflets, from which it is sometimes called "fringed fern." An allied species is found in the United States.

Lygodium scandens.
Ophiglossum "

ဒန့်ရင်ကောက်။ ဒန့်ဒံငေါက်။ (*Tavoy.*)
ဆတ်ရှိုရစ်။ ကဲ့ခိ၂. ကံးကိၢ်။

ENGLISH BRAKE.

The common English brake abounds on the hills, and has been met by Mr. Parish in the Tenasserim Provinces as low as one thousand feet above the sea level.

Pteris aquilina, Lin.

OAK-LEAVED POLYPOD.

In some parts of the forests, the trunks of almost every tenth tree have a great abundance of a large species of polypod growing upon them. The barren fronds are cordate, and stemless; but the fertile ones stand on long slightly winged stems, and are gashed like the leaves of an English oak.

Polypodium quercifolium.

ဇောက်ချိအုပ်ထုပ်။ ယူခဲ့ကျွန်. ယုခ့ဒီ။

PITTED POLYPOD.

This fern is often found in company with the preceding species; and may be easily recognized by its creeping habit, and by the margins of the upper parts of its fronds being rolled together when in fructification.

Polypodium pertusum.
Niphobolus pertusus.

STIPE-CLASPING BRAKE.

A large brake is common at Tavoy with pinnate fronds, whose leaflets have two lobes at the base which clasp their stipe.

Pteris amplexicaulis.

ကက်ဒံ။ ဖူဝက်ွံ။

GRASS FERN.

The trunks of our forest trees are often clothed with the green drapery of the grass fern, which grows upon them precisely like bunches of long grass.

Pteris graminifolia.
Vittania " ?

DAVALLIA.

An elegant fern of the genus davallia characterised by the fructifications being "in roundish separate spots, near the margin," is very plentiful in the neighborhood of Maulmain. Mr. Parish has six species in his catalogue, one from the top of *Nwalabo* in Tavoy.

Davallia.

MULE FERN.

Near the sea shore a species of mule fern with cordate fronds is sometimes seen.

Hemionitis cordifolia.

SCANDENT LOMARIA.

The low lands near the mouths of our rivers and nullahs, are often fantastically dressed with a species of lomaria which creeps up to the tops of the tallest trees.

Lomaria scandens.

TAPEWORM FERN.

The tapeworm fern, so called from the resemblance of the line of sori to a tape worm, is not infrequent.

Tænis blechnoides.

MAIDEN-HAIR.

That "prettiest of all ferns," *Adiantum capillus veneris*, or maiden-hair, has been found by Mr. Parish on limestone rocks in the Tenasserim Provinces; and a nearly related species of the same genus, is seen in the crevices of old ruins and walls everywhere, from Mergui to Toungoo.

Adiantum lunulatum, Burm.

PARISH'S ADIANTUM.

Near the summit of the Dongyan rocks at Maulmain, Mr. Parish met with a new and very marked species of *Adiantum*, which Sir W. Hooker has figured and named after the discoverer. It belongs to that section of the genus which has undivided fronds and of which one or two species from Teneriffe, Mauritius, and Bombay only were previously known. The frond is nearly oval, wider than long, and about an inch in its longest diameter. I looked for it on the high lime-stone rocks of the Red Karen country, but did not find it.

Adiantum Parishii.

ADDER'S TONGUE.

Mr. Parish found a pendulous species of adder's tongue at Mergui, a tribe of plants nearly related to the ferns with hollow stems. "Spore-cases collected into a spike formed out of the sides of a contracted leaf."

Ophi glassum.

DANÆAWORTS.

This is a tribe of plants differing from the ferns in their spore-cases. "They appear sunk within, or more rarely seated upon the back of the leaflets." Mr. Parish has met with one species.

Angiopteris crassipes.

HORSE-TAILS.

On the rocks in the midst of the mountain streams is often seen a curious rush-like plant, with a jointed stem, like the branchlets of the casuarina. They are remarkable for the quantity of silex contained in their cuticle.

Equisetum.

CLUB MOSS.

The green woods of our southern provinces are often carpeted with the club moss, or ground pine, of which we have one or two handsome species.

Lycopodium cernuum.

SALVINIA.

A curious little floating plant, related to the ferns, of the genus salvinia, is often seen on the surface of old tanks and stagnate waters.

Salvinia cucullata.

MOSSES.

Scale-mosses and urn-mosses abound in Burmah, but nothing was known of them till Mr. Parish undertook their elucidation. Full catalogues will be found in their appropriate place, furnished by Mr. Parish for this work.

Jungermanniaceæ.
Bryaceæ.

RED KAREN LICHEN.

The pines and teak of the hills that border the Red Karen table land are ornamented with long tufts of a curious species of lichen, that hang drooping from their topmost branches two or three feet, and look, in the distance, like the Spanish moss, *Tillandsia usneoides*, on the cypress trees of the Mississippi. It is a species of *elsnea*, which Dr. Brandis thinks nearly allied to the European *U. florida*, but that is an erect species, while this is drooping.

Usnea.

CASUARINA LICHEN.

Some of the casuarina trees on the sea coast are adorned with smaller, but similar drapery to the preceding. Mr. Parish says it is "a species of *Ranalina*, very near to *Usnea*."

Ranalina.

TABLE FRUITS.

There is a great variety of fruits indigenous and exotic in this part of the British territories, and to a native, who while a child eats a raw sweet patatoe with as much zest as a European would an apple, they are no doubt considered unsurpassable. The ancient Celts eat acorns, and the modern Californians still use acorn bread, and the Burmese and Karens eat fruits which are but little superior to an acorn. Some, however, are thought to be delicious and are held in high repute; but in general they are much inferior to the fruits of temperate climates.

MANGOSTEEN.

"Malaya's nectared mangosteen" is truly a delicious fruit, and by many esteemed as "the most palatable of known fruits," but though very delicate it is not to be compared to an American peach. It is cultivated to a considerable extent in Mergui, but is rarely seen in the northern provinces.

Garcinia mangostana.

မင်ကု။ မာကူဒ. မင်ကူး။

DORIAN.

The dorian holds an important place among the fruits of this country, being regarded by the voluptuous natives as second to none. It is probably the most fœted fruit in existence. Wight speaks of "the dorian so celebrated on account of its fine flavored but excessively fœted fruit;" and adds: "It is said by Rumphius to be of a very heating quality, liable to excite inflammatory derangements of the system.

Durio zibethinus.

ဒုရည်။ ထိဒရုး. ဒိဒရုး. တူဂ်ရှဲ။

MANGO.

The mango deserves the first place among the indigenous fruits, being, as Dr. Lindley truly says: "To the inhabitants of India what the peach is to Europeans; the most grateful of all fruits. Its flesh is filled with a rich luscious juice; but the inferior kinds have also so much turpentine flavour as to be uneatable."

There are two different species, both of which the natives say grow wild, and several varieties are cultivated. The finest is a variety from Siam, which produces a large fruit with a very thin stone.

Mangifera indica.
" *sylvatica.*

သရက်။ ခိဒ. စခိး။ ဘခိး။

HORSE MANGO.

This is a large mango cultivated at Mergui, and is quite a favorite with the natives. It has an odor resembling the dorian, and like that has been introduced from the Straits.

Mangifera fœtida.

လမ္ဗတ်။ ၁မူၤ. ၁မူး။

OPPOSITE-LEAVED MANGO.

This indigenous tree produces a fruit much like a plum. There are two varieties,—one bearing an intensely sour fruit, and the other, one as insipidly sweet.

Cambessedea oppositifolia.
Mangifera "

မမန်။ ဗၤ. စဗီၤ။

LICHI.

The lichi, originally from China, is a favorite fruit in Bengal, but did not succeed on this coast until recently. The trees bore their first fruit last year.

Nephelium Lichi.

PAWPAW.

The first fruit that I saw on the table in Burmah, was an American pawpaw; not the pawpaw of the Mississippi valley, *Porcelia triloba;* but the pawpaw of South America and the West Indies. Europeans call it papaya, from the Portuguese *papayo;* and by the Portuguese it was probably introduced into India.—The fruit resembles a melon in appearance, and often tastes no better than a good English turnip.

Carica papaya.

သသော်သီး။ ဟိမ်ခိုသီး။ (*Tavoy.*)
အိၤစံၤ. ကိစ္စ။ ၁ကွံခွန်။

GUAVA.

The guava, another American tree, is planted perhaps more extensively than any other fruit tree in the country. Loudon has the most correct notion of the fruit that I have seen. He says: "Most of the species are cultivated in the tropics for their fruit, which also ripens freely in this country, but is of little merit."

The white guava is the species most usually cultivated, but the red is not uncommon.

Psidium pyriferum, (*white.*)
" *pomiferum* (*red.*)

မာလကာ။ ခမောင်ထေဝင်။ (*Tavoy.*)
လယါကၤ. နၢ်ကါ။

PINE APPLE.

Another of the most abundant fruits in Burmah is the pine apple, also an American production. With the plant, the native American name appears to have been introduced into Burmah, for *nanas* is said to be the name it had among the Peruvians, where it was originally found, and the Burman name is *nanat*; which the Sgaus have abbreviated to *nay*.

Ananas sativus.

Bromelia ananus.

နှာနတ်။ နှုရှု. နဲ။

PLANTAIN.

The plantain or banana, though a far less palatable fruit, holds the same place in this country that the apple does in England and the United States. It is used as a vegetable as well as an article for the dessert, the great proportion being eaten with rice and meat, in the place of potatoes.

There is perhaps no plant of which so many preposterous things have been carelessly written in books of travels, and then copied into works of graver character, than this. Among other things equally veritable, it is said,* "Three dozen plantains are sufficient to serve one man for a week instead of bread, and will support him much better." A Karen by me says he often eats ten at a time, and a hundred would not be sufficient for a man one day if he had nothing else, unless they were very large.

Like the mango, the tree is indigenous, but the wild fruit is too full of seeds to be eatable. The plantain and banana, which were formerly regarded as distinct, are now considered by botanists as one species, but it embraces many varieties: I have the Burman names of *twenty-five* before me. "The numerous varieties," writes Voigt, "we have in vain tried to put in some order. The attempt made for this purpose, in Schultens, appears to us to have only increased the confusion." The *Manilla hemp*, from which a fabric of the finest texture is prepared, is made from the leaves of a species of plantain tree, *M. textilis*. Another distinct species of this genus grows wild in our jungles, and is rather an ornamental plant, which is all that it has to recommend it. Unlike the common plantain it never throws up shoots from its roots.

The name of the plantain in Pali is *mauza*, which is its Arabic name, *mauz*, with a final vowel added, to pronounce the last consonant, no words in Pali ending in any consonant excepting *n*. Now if its Arabic name be so widely diffused, it seems quite certain that had the plant been known to the Hebrews, the

*See Loudon's Encyclopedia of Plants, under M. paradisiaca.

Hebrew being cognate with Arabic, it would have had a similar name. This fact is a sufficient refutation of the *conjectural* interpretations of certain passages of Scripture that we meet with from time to time. Thus: "Loudolf's conjecture that *dudaim* (mandrakes) were the fruit of *Musa paradisiaca*, (plantain tree,)" which has been recently revived in a modern work, cannot stand, on account of its name. For the same reason, the conjecture that the grapes which the spies brought from Canaan, were plantains, cannot be sustained. The plantain seems a favorite plant to build fancies upon. Gesenius in defining *teenah*, the fig tree, refers to Gen. 3:7, "where," he says, "the *Ficus indica* or *Musa paradisiaca*, plantain tree, Engl. with very large leaves seems to be meant." This is perfectly conjectural and is wholly unsustained by the usage of the word, as well as that it bears no resemblance to its Arabic name.

Musa paradisiaca.

ငှက်ပျောဝ။ ဝံဒကွံၤ. ဝကွံ

OLEASTER PLUM.

This sour red plum, which grows on a magnificent creeper, makes excellent tarts and jellies, and is a great favorite with the natives. It grows wild in many of our jungles, but is no where very abundant. It is often seen in cultivation among the Burmese, and I have met with it in some of the Red Karen villages.

Elæagnus conferta.

မင်ရူ။ ထူ၊ ဝထူ။

MALAY APPLE.

This tree thrives luxuriantly at Mergui, and bears some resemblance in taste to a juicy apple, but it is a very indifferent fruit. The Burmese call it *tha-byu-tha-byœ*, the "dillenia-eugenia," from *tha-byu*, a species of *dillenia* that bears an edible fruit, and *thabyœ*, a generic name of the *eugenia*. McClelland appears to have found the name applied to another species, *E. ternifolia*.

Eugenia mallaccensis.

Jambosa mallaccensis.

သဖြုသပြေ။

ROSE APPLE.

The rose apple described as "tasting like the smell of a rose," is cultivated to a small extent in European gardens.

Eugenia Jambos.

Jambosa vulgaris.

JAMBO FRUIT.

A small black plum is often seen in bazar which is produced by a species of eugenia. According to Burman geography there is a eugenia tree on the great island or continent which we inhabit, that is twelve hundred miles high, one hundred and eighty-six in circumference, with five principal branches, each six hundred miles long. From this tree the island derives its name *Sambu-deba*, *Eugenia island.

Eugenia.

သပြေတအိုကျယ်။ မံုလိုး. ဘဝုလာဂ်။

PIERARDIA FRUIT.

One of the best and most plentiful of the jungle fruits is the pierardia. It grows in bunches resembling large grapes, is agreeably sub-acid, and when ripe, of a yellowish hue. The tree is small, and when arrayed with these long golden bunches it is very beautiful. It would be quite an acquisition to our gardens, both for ornament and utility.

Pierardia sapota.

ကနစိုး။ ကစော။ (*Tavoy.*)

ဘုဆူ. ဘဉ်ပစုဂ်။ စဲုဂိုး။

CUSTARD APPLE.

The custard apple, an American fruit, is cultivated quite extensively in Burmah. The pulp is very agreeable, and has much the appearance of custard.

Anona squamosa.

ဩဇါ။

SOUR SOP.

This fruit, resembling the custard apple, is sometimes cultivated by Europeans.

Anona muricata.

BULLOCK'S HEART.

Of the same genus as the custard apple is the bullock's heart, which I have occasionally found in native gardens.

Anona reticulata.

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* *From* စမ္မူ။—*a eugenia tree* (*Pali.*)

" ဒီပ္ပါ။—*an island.* "

UVARIA FRUIT.

This fruit has the taste and appearance of the North American pawpaw, and they are members of the same natural family. It is the produce of a scandent shrub abounding in the jungles.

Uvaria grandiflora.

တမ္ဆတီ။ ဒိုးပယိၢ့ ဝညိပြာ။ ဒိးပညီ။

ORANGE.

Oranges are quite abundant, but for the want of proper attention they are much inferior to the West India oranges, and to those cultivated in the south of Europe. The trees are often exceedingly prolific. A seedling that I planted, produced in the ninth year more than two thousand oranges.

Citrus aurantium.

လိမ်မော်။ စုမ်စင်။ (*Tavoy.*)

လံၤဓိၢ့ စူဝ်ဝံ။ ဝဉ်ဝွံ။

SWEET LIMES.

A considerable proportion of the fruit sold for oranges are sweet limes. Dr. Pickering of the American Exploring Expedition, remarks: "I did not meet with the true orange, either in Hindostan or the East Indies." The tree may be often distinguished by its leaf, which is usually slightly winged, and smaller than the orange.

Citrus limetta.

SHADDOCK.

The shaddock, or pumplemuss, may be often procured in market, but the fruit is decidedly inferior to the Bengal pumplemuss.

Citrus decumana.

ရှောက်တုံအို။ ဒီးအိၢ့ ဒီအိ။ ဝဉ်ယိ။

WOOD APPLE.

Col. Phayre told me that he had seen the wood apple in cultivation by the Burmese in Amherst Province, and Dr. Brandis says that there are in the En forests two trees belonging to the genus *Feronia*, one with white bark and the other red. "The pulp of the fruit," says Wight, "affords a very pleasant jelly so closely resembling black currant jelly as to be only distinguished by a slight degree of astringency."

Feronia elephantum.

မှန်။

THREE-LEAVED TRIPHASIA.

The three-leaved triphasia which bears a small berry, like an orange in miniature, often found in Chinese preserves, is raised in European gardens.

Triphasia trifoliata.

CITRON.

The citron is cultivated, and I have met with citron trees in the jungles apparently indigenous. The fruit, however, is much inferior to the Bengal citron.

ရှောက်တခွါး၊ ပရ၂၂ခအံ၊. ပြားဒံ၊ ဝဉ်ဝွံ။

SMALL LIME.

The small acid lime is seen almost every where in abundance.

Citrus bergamia.

" *acida.*

သံဗရာ။ ပနီ၇ကျဲ၊. ပနီကျဲ။ ပနီ၊ ဝဉ်ဝံဝိ၊

LARGE LIME.

Large varieties of the acid lime are diffused all over the country; and Europeans usually call them citrons; but the trees are easily distinguished by their leaves, as the leaf of the citron is simple, while that of the large lime is winged.

Citrus bergamia.

ရှောက်။ ပရ၂၂. ပြားဒ၊ ဝဉ်ဝွံ။
စာဆံဉ်။ ဝၢဉ်ဝံဉ်ဝဲဉ်။

DOUBLE-LEAVED CITRON.

There is a species of citrus at Tavoy with a leaf that looks like two leaves joined together, the wings on the petiole being as broad, or even broader, than the leaf itself. The fruit is small, and there are two varieties, one with a smooth, and another with a rough skin. I do not find it noticed in any of our Indian Floras, but Dr. Pickering met with a similar tree on the Samoan Islands, a member of the Phillippine Flora.

Citrus torosa?

ရှောက်ပုတ်။ ဝဉ်ဝွံ။

POMEGRANATE.

The pomegranate is cultivated to a very small extent in gardens by both Burmese and Europeans.

Punica granatum.

သလဲ၊ စလဲ၊ ဝလူ၇. ဝလဲ၊

WILD RAMBOUTAN.

One of our indigenous trees bears a fruit whose sub-acid aril is very agreeable to the palate, and much resembles that of the ramboutan so famous in Malacca. Malays to whom I have shown the fruit, say it is the wild ramboutan, and the tree certainly belongs to the same genus; but never having met with it in flower, I cannot determine the species.

Nephelium.

ကျွက်မောက်။ ကြက်မအုပ်။ ခံ့ဖိုးမံ့. ဝဉ်ကပါ်မှဉ်။

SCHLEICHERA.

The fruit of this tree resembles the wild ramboutan in every thing except that it is covered with prickles half an inch long. It is rarely seen in market, but would be a valuable addition to the dessert. The tree grows among the hills of Tavoy.

Schleichera.

ကျွက်မောက်။ ကြက်မအုပ်။ ခံ့ဖိုးရှိ၇. ဝဉ်ကပါးဒိးဆူဉ်။

OTAHEITE GOOSEBERRY.

This tree which is larger than the jujube, is planted by the Burmese all over the Provinces, who value its fruit highly. It bears some resemblance to a gooseberry both in appearance and taste; and I have heard it called "the Otaheite gooseberry." The tree here is diœcious.

Cicca disticha.

Phyllanthus longifolius.

ဆိဖြို့။ သဿီဝဆီ ဆံမိုင်တိုး။ မးတိုင်း

CARAMBOLA.

The carambola tree bears a sour fruit which makes a good tart, and there is a variety which bears a sweet fruit. The tree, though originally, it is said, from the Moluccas, flourishes well in Burmah, and is quite naturalized.

Averrhoa Carambola.

ဇောင်ယား ဆောင်ဝါး။ (*Tavoy.*) ခဲ့ခီ့.
ဝဉ်ခွဉ်ခိဉ်။ ဝါတကုး။

BILIMBI.

The bilimbi tree, another species of the same genus, has been introduced into a few of our gardens, where it bears profusely, and its fruit is used like that of the carambola.

Averrhoa Bilimbi.

BRAZIL GOOSEBERRY.

A species of physalis which bears a berry, sometimes called the "Brazil gooseberry," is occasionally seen in gardens, and the fruit in tarts has much the taste of the gooseberry.

Physalis peruviana.

SAPODILLA PLUM.

In a few European gardens may be found the tree which produces the sapodilla plum; whose "fruit, in appearance like an old decayed potatoe, is yet the most luscious in the West Indies.

A few trees were formerly cultivated in Pegu for the use of the king of Burmah, and it was high treason for a subject to taste the fruit.

Acras sapota.

သွတ်တဘတ်။ ဒွပ်လဘတ်။

CHOCOLATE-NUT TREE.

The chocolate-nut tree is seen in Tavoy gardens, and it brings its fruit to perfection.

Theobroma Cacao.

BENGAL CURRANTS.

In some of the European gardens a species of carrissa is cultivated for its berries, which taste when stewed like currants.

Carissa Caranda.

GRANADILLA.

This luxuriant exotic from the Jamaica passion flowers, flourishes well in Burmah, and is very prolific. The smooth oblong fruit grows nearly as large as a cucumber, and contains a succulent pulp, which makes a cooling delicious dish, and when prepared in tarts, can scarcely be distinguished from green apple. The Rev. Mr. Bennett of Maulmain, has introduced it among the Karens, by whom it is highly esteemed, and much sought for. It will no doubt soon be generally diffused through the Provinces, as it possesses all the attractive qualities of fine fruit, handsome fragrant blossoms, and when trailed over an arbor, a rich pleasing shade.

More recently Gen. Johnson introduced it into Toungoo, and from seeds which he furnished, the plant may be now seen flourishing in both the Paku and Bghai villages.

Passiflora quadrangularis.

အာသာဝဒီး။

MULBERRY.

The mulberry, cultivated in the Tenasserim Provinces, produces a very agreeable black berry in great quantities; but what ap-

pears to be the same species in Toungoo, never even flowers. It is cultivated extensively where the silk worm is raised.

Morus indica.

ပိုစါ။ ထိအၢ့. ဘတိၢ်အိၣ်။

RHASPBERRY.

Griffith says there is a species of rubus in the Tenasserim Provinces. Wallich found one on the Irrawaddy; and O'Riley brought one from the Karenee country which grows well in Toungoo.

Rubus.

WORTELBERRY.

Dr. Brandis met with one or two species of *vaccinea*, or wortelberry. in Pegu; and Wallich had a species of *Thibaudia*, a related genus, from Tavoy, that Wight unites with vaccinea.

Thibaudia loranthiflora.

STRAWBERRY.

I have raised very fine strawberries in my garden at Tavoy, but the plants require considerable care.

Fragaria.

ROSELLE.

The roselle plant, the red sorrel of the West Indies, is very widely diffused, and its red sour calyx makes a fine flavoured jelly, and preserve, which is a good substitute for cranberries.

Hibiscus Sabdariffa.

ချင်ဗောင်။ ဘဲၤဆဲၢ့. ဘဲဆံၣ်။

WATER MELON.

Both Burmese and Karens raise water melons, but they are neither so large nor so sweet as those of America.

Citrullus Cucurbita.

ဗရဲ။ တဲၢ့တိၤ. တဲတိၤပရဲ။

MUSK MELON.

A very indifferent muskmelon is cultivated by the natives generally.

Cucumis melo.

သခွားမွှေး။ ကျောက်မွှီ။ (*Tavoy.*) ထံၤမုၢ. ဒံမုၣ်။

CHESTNUT.

There is an indigenous chestnut tree growing on the uplands which yields abundantly, and whose fruit is sold in bazar, but

they will not compare with the French chestnuts, nor even with the American chincapins.

Castanea martabanica.

သစ်ချ။ သစ်တ။ (*Tavoy.*) ဘံ့အ့. ဘဒိန်။

FŒTID STERCULIA.

The fœtid sterculia is not uncommon in the forests, and its seeds are eaten like filberts.

Sterculia fœtida.

လက်ခုပ်။

BOODH'S COCOANUT.

A handsome tree, bearing a large fruit, called Boodh's cocoanut, is met with in the Tenasserim Provinces, whose winged seeds are sometimes eaten by the natives.

Sterculia alata.

PEA NUT.

Ground nuts are abundant in the bazars, and are consumed in large quantities by the natives. The plant is raised very extensively by the Red Karens.

Arachis hypogea.

မြေဝဲ။ ထိုးခုံ့လူ. ပထိးခူဉ်လီး။

SANDORICUM.

The sandoricum tree bears a fruit the size of an orange, occasionally called the wild mangosteen, to which it bears some resemblance. It has a fleshy acid pulp and makes a very good jelly, but has a peculiar odour. The natives eat the fruit raw, and esteem it excellent.

Sandoricum indicum.

သစ်တို။ ဒူး. ဝဒု။

WILLUGHBEIA.

There is a species of willughbeia in the forests that produces a fruit as large as an apple, which Europeans sometimes call "a kind of a fig." It has an agreeable taste but abounds in a milky juice.

Willughbeia martabanica.

TAMARIND.

The tamarind is a large handsome tree, with spreading branches, and is worthy of care for its light beautiful green foliage, and profuse yellowish blossoms with veins of red, as well as for its fruit. It is an exotic on the Tenasserim coast, but is planted by natives around their dwellings for the leaves, which being

slightly acid, afford an agreeable condiment to their curries. It is cultivated extensively in Pegu and the fruit is constantly for sale in the bazar.

Tamarindus indica.

မကျည်း။ မင်ကလဲ။ (*Tavoy.*) မၢချီး.
ဝဉ်မိုးကျွၢ။ မိဉ်ကျိၢ်။

CASHEW-NUT.

The cashew tree bears an agreeable fruit, to which is attached the nut, both of which are common in the market.

Anacardium occidentale.

သီဟိုသရက်။ ရှက်တလစ်။ (*Tavoy.*)
ထိၤဘံၢခၫ. စခိးလိဉ်ဝး။စဲကလဲ။

JUJUBE.

The jujube from which the famous jujube lozenges are made, is a small sour berry, a great favorite with the Burmese and Karens. The tree is of middle stature, and is often found apparently growing wild.

Zizyphus jujuba.

ဆီ။ မၤခါး. ထံမိၢ်တိၤ။မးတိၢ်။

WHITE JUJUBE.

A tree bearing an intensely sour plum is very abundant in the jungles, from Mergui to Toungoo. It has had a place in the Materia Medica under the name of *Myrobalana Embelica.* Roxburgh says: "The wood of this tree is hard and durable, particularly under water. The bark is strongly astringent; the natives employ it to cure diarrhœas, and to tan leather. The fruit is at all times full of exceedingly sharp juice; it is eaten raw by the natives. They are pickled and made into preserves with sugar."

The trees appear to be most prolific, and the fruit largest, in the Red Karen country.

Phyllanthus Embelia.

ဆိဖြူ။ တရှါ။ (*Tavoy.*) လၤ. ၁ယၤ။

ANTIDESMA.

A low tree, bearing a red sour fruit, resembling the barberry, is common in the neighborhood of Toungoo. It is *Antidesma paniculata,* described and figured by Roxburgh with rounded or notched leaves; but they are more often pointed in the Burmese

plant, though notched, rounded and acute pointed may be often seen on the same twig.

Antidesma paniculata.

ဗျည်စင်။ ဟိန်ရှန်။ ဟးဆန်။

INGA.

Native gardens are often ornamented with a species of inga, which affords a thick beautiful shade, and when in flower its tufted boughs seem to bend under their burdens of sweet scented blossoms. It is a leguminous plant, whose seeds are poisonous, and when taken into the stomach sometimes produce disastrous consequences, yet the Burmese and Karens are extravagantly fond of them, as a condiment to their preserved fish, and they bring a high price in the bazars.

Inga bigemina.

ဇာညင်။ ဓညင်။ ဝနဲ့။ ဝန့။

EDIBLE ZALACCA.

A red scaly fruit, produced by a species of zalacca, may be often seen in bazar, but it is eaten by the natives only.

Zalacca edulis.

ရင်ကမ်။ ခီ့။ စခီ။

FIG TREE.

A stunted fig-tree or two may be seen in a few European gardens, but the fruit rarely comes to perfection; although perhaps there are more indigenous trees in the jungles belonging to the fig genus, than to any other in the whole vegetable kingdom.

Ficus Carica.

ညောင်ရည်။ ချိ့ဒိ့။ ချာန်ဒာ။

SYCAMORE.

Several species of Ficus, nearly related to the sycamore of the scriptures, are very common throughout the country. They bear their fruit on the branches, trunk or roots. In some species, at least, the young trees bear their fruit on the branches; when older, on the trunk; and when very old, on the roots, which the trees throw out several feet above the ground. The Karens have different names for sixteen species, and deem the fruit of a few very palatable, and they are perhaps as good as the sycamore of Egypt and Judea. Some critics think that "sycamine tree," in Luke 17 : 6, denotes the black mulberry; but it is more generally regarded as identical with the sycamore, that must not be confounded with the English sycamore, which is a species of maple; nor with the American sycamore, or button wood, which is of the

same genus as the plane tree. Dr. Brandis identifies one species with

Ficus lanceolata. Roxb.

သဖန်း။

Another species is, if I mistake not,

Ficus glomerato, Roxb.

ရေသဖန်း။

A third species bears a fruit as large as an ordinary fig, sweet to the taste.

Ficus macrophylla. Roxb.

INDIAN GRAPE.

There are three or four species of grapes in the country. One is seen creeping over every hedge and bush, which has sometimes been mistaken by Europeans for the true grape vine, but the fruit is acrid, like all the indigenous species, and not edible even to a native.

Vitis indica.

ရင်ဒေါင်။ ထိးမိုဂ်ပှာ်အခဲ်ဆံ်။

GRAPE VINE.

The grape vine may be seen in many of our gardens, but it very rarely produces fruit. I once saw a vine in Mergui, however, which had on it several fine bunches of grapes; and I have heard of grapes being occasionally brought to perfection in Maulmain.

Vitis vinifera.

စဟျစ်။ စပံ၂. စပံး။

CHERRY.

Voigt says there is a species of cerasus, or cherry, "a native of Maulmain," but I have never happened to meet with it. He had, however, good authority for the statement; and Griffith remarks that there is in the Provinces one species of the almond tribe, "which abounds in prussic acid."

Cerasus.

WALNUTS.

Walnuts are occasionally brought from above Ava, but it is not certain that they are the produce of the indigenous walnut tree.

Juglans arguta.

သစ်ကြ။

PEGU WALNUT.

Dr. McClelland found a species of walnut in Pegu, which he says the Burmese call *ta-soung-let-wah.*

Juglans tricoca.

HOG'S PLUM.

This is an intensely astringent fruit very appropriately named. The Karens have a tradition that in those golden days when God dwelt with men, all nations came before him on a certain day, each with an offering from the fruits of their land, and the Karens selected the hog's plum for their oblation; which gave such offence, that God cursed the Karen nation and placed it lowest among all the nations by whom they are surrounded.

Spondias mangifera.

ကျွေး။ ဂွေး။ ဖွဲ့ပေါင်။ *(Tavoy.)* ဖွ့ၥ. ၁ဖဲး။

COCOANUT.

The cocoanut is one of the most valuable of tropic fruits, and the milk of the young nuts is a very grateful beverage.

Cocos nucifera.

အုမ်။ ဖျိုး. ဒီး။

LOQUET.

The loquet is sometimes seen in flower around our bungalows, but I have never met with it in fruit.

Eribotrya japonica.

PEAR TREE.

Wallich found a species of pear-tree growing on limestone mountains, near the Irrawaddy; and it may exist in these Provinces, though I have never met with it. Bishop Bigandet saw good pears at Bamoo.

Pyros.

JACK.

The jack is perhaps more abundant than any other fruit, except the plantain. It is invaluable to the natives, but is an indifferent fruit to Europeans. The tree is large and affords a very dark grateful shade, and when the fruit, which is often as large as a man's head, is hanging all around its branches, it is a grand object.

Artocarpus integrifolius.

ပိန်နဲ။ ဖွဲ့. ခွဲပါ်။

BREAD-NUT.

The bread-fruit tree is cultivated in a few gardens at Tavoy and Maulmain, and bears very well; but the fruit is of that variety which is full of seeds and is of no value.

Artocarpus incisus.

BREAD-FRUIT.

The true seedless bread-fruit tree is cultivated at Penang, and has recently been introduced into Mergui, where it is said to flourish.

Artocarpus communis.

MOUNTAIN JACK.

There is an echinated, agreeably acid fruit produced by a large tree, which the Burmese call the mountain jack. The leaves of the young trees are gashed like some species of oak. One of our Tavoy surgeons transplanted a tree to his own garden, under the impression that it was *A. incisa,* the bread-fruit tree, not being aware that in old trees the leaves are entire.

Artocarpus echinatus.

တောင်ပိန်နှဲ။ တောင်ဖိန်။ ၁၇. ၁၇။

LACOOCHA BREAD-FRUIT.

This fruit is usually designated by Europeans "a kind of a fig;" but it is a species of artocarpus, occasionally raised near native houses.

Artocarpus Lacoocha.

မြောက်လုပ်။ ဖုခ၂. ကပၢ်။

HAIRY BREAD-FRUIT.

This indigenous fruit resembles the preceding, in every respect, except that it is covered with soft weak hairs.

Artocarpus hirsutus.

မြောက်လုပ်ကြီး။ ဖုခ၂၀၄ဒိ၂. ကပၢ်၀းဒိဉ်။

SMALL BREAD-FRUIT.

This is an orange-colored fruit resembling in taste a custard apple, and in appearance a fig, but it is a species of artocarpus, which I cannot find any where described, though not scarce in our forests.

Artocarpus.

မြောက်လုပ်ငယ်။ ဖိခ၂ဖိ၂. ကပၢ်အံဉ်ပြီ။

MORINDA FRUIT.

A species of morinda is often seen growing near Burman houses, which produces a fruit as large as a pullet's egg. It is a great favorite with the Burmese, and is served up in their curries.

Morinda.

ယဲယိုး

HOG-CHESNUT.

Every one has heard of the horse chesnut, but few are probably aware that in these Provinces the hog-chesnut is indigenous. Such is a literal rendering of the Burmese name, and the tree is certainly a species of chesnut, but it is not described in any of the books to which I can refer.

Castamea.

ဝက်သစ်ချ။ ဌာထိုးအုံ. ဌထိုးဖါ။

CHINESE DATES.

"The Burmese," says a correspondent who resided several years at Ava, "call the Chinese fig, which is brought in great quantities overland to Ava, *tee-thee*, or *tay-thee*."* This is the same fruit which in England is called Chinese date; but is neither a fig nor a date, but the fruit of a species of ebony: and a more appropriate name would be the Chinese persimon, the persimon tree being also a species of ebony, and there is a considerable resemblance in the fruit.

The tree which produces this "Chinese date," is occasionally cultivated by the Burmese, but it bears fruit very sparingly, and I think with Roxburgh, that it is "by no means equal to a good apple."

Diospyros Kaki.

တယ်။ တည်။ ဟိန္ဒုက။ *Pali.*

MIMUSOPS FRUIT.

A dried fruit is occasionally seen among the Chinese, brought from Singapore, and some of the seeds produce trees, which, judging from their leaves, can be no other than

Mimusops Kauki.

VEGETABLES.

There is a great variety of vegetables indigenous or cultivated in Burmah, but the best are scarce, and rarely for sale in the bazars. Nearly every plant produces a vegetable for the natives.

*တည်သီး၊ or တယ်သီး။

The Burman books say, there are ten kinds of vegetables, or pot herbs, corresponding to the parts of a plant that furnish them.

စင်းဖြတ်ဝပါ။	အမြစ်။	—*the root*	မူလ။	(*Pali.*)
	အရွက်။	—*the leaf*	ပတ္တ။	"
	အညှောက်။	—*the sprout*	ကလိရ။	"
	အညွန့်။	—*the shoot*	အဂ္ဂ။	"
	အဋ္ဌာ။	—*the tuber*	ကန္ဒ။	"
	အနှစ်။	—*the heart*	ဓိညွ။	"
	အသီး။	—*the fruit*	ဖလ။	"
	အခေါက်။	—*the bark*	တစ။	"
	အပွင့်။	—*the blossom*	ပုဗ္ပ။	"
	မှို။	—*mushroom*	ဆတ္တ။	"

KAREN POTATOE.

This is a small yam, not much larger than a kidney potatoe, which it much resembles both in appearance and taste. It is cultivated extensively by the Karens, and being more like a potatoe than a yam, has acquired the name of the Karen potatoe, and is sometimes called the Tavoy potatoe. It is the best vegetable we have, but unfortunately it can be obtained during a few months only in the year. I am not aware that it is ever found wild on the coast, and it appears to me to be either identical, or nearly related to Roxburgh's

Dioscorea fasiculata.

ကဒွေဥ။ မှိုဂ. နွဲ့ဂ်စခူ။

ELEPHANT-FOOT YAM.

A yam with a tuber about the size and shape of an elephant's foot, ranks next to the preceding species. It is white, and often as light and agreeable as a potatoe. It abounds in Karen gardens, but is rarely seen among the Burmese, or in the market.

Dioscorea.

မြောက်။ နဲ၂ကဆာ့ခ၂လး. နွဲ့ဂ်ကဆီခိဂ်လိုဂ်။

LARGE WHITE YAM.

There are several different species and varieties of white yams in cultivation. The one most in repute has arrow-headed cordate leaves.

Dioscorea globosa.

မြောက်ဖြူ။ နဲ၂အွၤ. နွဲ့ဂ်ဝါ။

DARK PURPLE YAM.

A yam with a dark purple root is one of our best yams, and is extensively cultivated both by Karens and Burmese.

Dioscorea atropurpurea.

မြောက်နို။ နဲ၂ဝိုး. ခွဲ့ဂိုး။

OTHER YAMS.

Dr. McClelland mentions the following yams as being cultivated in Pegu. Whether they are the same species as the above, or distinct, is uncertain.

Dioscorea	*glabra,*	smooth yam.
"	*rubella,*	red "
"	*anguina,*	snake "

BATRAJ YAM.

M'Clelland mentions *Hedysarum tuberosun,* as the Batraj yam; and *Arum furfaraceum* as the scaly yam.

WILD YAM.

There are several indigenous species of yams, which are eaten by the Karens in times of scarcity, though very acrid. One is remarkable for its large ternate leaves, of which its leaflets are sometimes nearly a foot long, and six inches wide.

Dioscorea dæmona.

ကျွေး။ ချုံ. ချုံ။

SWEET POTATOE.

The sweet potatoe is very abundant but it is vastly inferior both in size and quality to the sweet potato of the Southern States of America.

Batatas edulis.
Convolvulus batatas.

ကစွန်ဥ။ သသော်မြောက်။ နဲ၂စ ဖွုး.
ခွဲ့ဂိစိုပုး။ ခွဲ့ဂကဘီ။

TELINGA POTATOE.

This is a plant of the arum tribe which produces tubers like a yam, much esteemed by the natives, and is very generally raised by Burmese and Karens.

Amorphophallus campanulatus.
Arum campanulatum.

ဝါး ကိုး. ဃား

COLOCASIA.

This is another plant of the arum tribe which is grown by the natives for its tubers, that supply the place of potatoes.

Colocasia antiquorum.

ပမ်း ဗူးဒိုး. ခုန်ဒား။

COMMON POTATOE.

The potatoe is of easy culture, but the tubers are very small, and it is not an object of cultivation, though with a little attention it might possibly be made one.

Solanum tuberosum.

PEA.

The pea is seen in European gardens, and produces very well in some localities.

Pisum sativum.

GOA BEAN.

There is a variety of the Goa bean which produces esculent roots that are eaten like potatoes, and are a very tolerable vegetable. The young pods are also eaten like French beans.

Psophocarpus tetragonolobus.

Dolichos "

ပဲမြစ်း ပဲဆောင်ဝါး ဘွဲ.-ဘွဲဂလိုး. ဘှဲးဘှဲဂလိုး။

SWORD BEAN.

The sword bean is planted to a small extent, and its young pods are used as a vegetable.

Canavalia gladiata.

Dolichos gladiatus.

ပဲနောင်နီ။ ဘူးဘၢကဘူး. ဘှဲဝံခုန်း ဘီဘန်ကဘီး
ဘီဘန်ဖးဒိန်း

INDIAN KIDNEY BEAN, OR FRENCH BEAN.

Burmese and Karens grow several varieties of one or two species of lablab, which occupy the place of kidney beans in Europe.

Lablab vulgare.

Dolichos lablab.

ပဲ။ ဘူးဘၢ. ဘီဘန်း

NATIVE BEAN.

The natives cultivate another bean which resembles the common European bean, and is esteemed by them a good vegetable.

Cyamopsis psoraloides.
Dolichos fabæformis.

ပဲပစ္စန်။ တၢ့တၢဝံၤ. ဘီတဉ်ဝဝံ်။

BLACK GRAM.

Crawfurd says that one of the most common pulses seen in Burmah is the *Phaseolus max*, which is the plant that produces the black gram of India.

Phaseolus Mungo, melanospermus.
" *Max.*

ပဲ။

MELILOT.

Griffith saw large fields of melilot in the neighborhood of Ava.

Melilotus.

ပဲ။

AGATI.

The legumes of the agati are a favorite vegetable with the natives, and the trees, which grow every rapidly, may be seen in perhaps every town and village in the Provinces.

Agati grandiflorum.

ပေါက်ပန်။ ပထိးခွဉ်ဖိထိဉ်ကိး။
ထိၣ်ခွၣ်ဖိၢထိၣ်ကိၣ်.

CHICKPEA.

The chickpea, or gram, is grown extensively by the Burmese.

Cicer arietinum.

ကုလားပဲ။ ထိၣ်ခိၤလၤ. ပထိးကိၤလၤ။

DOLL.

The doll bean is raised to a small extent in Pegu, and very largely by the Red Karens.

Cajanus indicus.

ပဲရင်ချုမ်။ ဘုၣ်တကျ့ၣ်. ကျွဉ်ဘုဉ်။

WILD FRENCH BEAN.

A species of phaseolus, the genus which furnishes the common French bean, grows spontaneously everywhere in the country.

Roxburgh describing the species says, that he never found it "*but in its wild state;*" while Voigt is made to say, by a mistake of the printer no doubt, "Cultivated, in which state only it was found by Dr. Roxburgh."

Phaseolus trilobus.

ပဲသံတာ။ တဲ့ဝၢ့. ဝဘွဲ့ရူ။

WILD DOLICHOS.

An indigenous species of dolichos with downy leaves and pods, abounds in some sections of the country.

Dolichos pilosus.

တောပဲ။ တၢ့တၢမွၢ့. တိတဉ်မံၤ။

LONG BEAN.

McCllelland mentions "the long or French bean."

Dolichos catjang.

WILD SWORD BEAN.

On the sea shore a wild species of sword bean is found growing in great profusion.

Canavalia obtusifolia.

မြောက်ပဲ။ တၢ့တၢမွၢ့. တဲ့ဝံခုဉ်မံၤ။

HORSE-RADDISH TREE.

The horse-raddish tree is propagated by the Burmese for its pods, which are eaten in curries; but it is chiefly valued by Europeans for its roots, which cannot be distinguished when eaten with roast beef, from the common horse-raddish, *Cochlearia Armoracia.*

Moringa pterygosperma.

တန့်သလွန်။ ဒန့်သလွံ။ ထိၢဝံ့. ပထိဒဝွဉ်။

ASPARAGUS.

The common English asparagus is sometimes seen in European gardens, but it is very unproductive.

Asparagus officinalis.

WILD ASPARAGUS.

There is an indigenous species of asparagus from Tavoy to Toungoo which produces a passable substitute for the English vegetable, to which, however, it is much inferior. It bears a sweet-smelling flower, and is deserving of cultivation as an ornamental plant.

Asparagus acerosus.

ကညွတ်။ ရှစ်မတက်။ နိုင့. နိုင်။

CABBAGE.

One of the most highly esteemed vegetables of European gardens is the cabbage, which is raised from imported seed, and fine plants are sometimes produced, but they are seldom in the market. The military garden in Rangoon, however, is beginning to yield this and many other European vegetables in greater abundance.

Brassica oleaceæ.

သဿီဝမုန်လာ။

TURNIPS.

Turnips are occasionally grown, but they do not reward the cultivator so well as cabbages.

Brassica Rapa.

မုန်လာ။ ဘၢဒိၢ. ၁ဘဉ်ဒိဉ်။

RADDISH.

Raddishes abound in vegetable gardens, and are almost always in the bazars.

Raphanus sativus.

မုန်လာ။ ဘၢဒိၢ. ၁ဘဉ်ဒိဉ်။

MUSTARD.

I have seen a species of mustard on the banks of the Tenasserim, several days' journey from any human habitation, and which the Karens regarded as growing spontaneously, but it did not appear to differ from the species in common culture on the coast, and the seeds had probably been dropped there by the passing traveller.

Sinapis.

မုန်ညင်း။ ဘၢဒိၣ. ၁ဘဉ်။

WATER CRESS.

Griffith says he found an indigenous species of nasturtium in the Provinces, but he does not appear to have described it.

Nasturtium.

GARDEN CRESS.

Among the dried seeds sold in bazar for medicinal purposes, are the seeds of the common garden cress.

Lepidum sativum.

စမုန်နီ။

RED GOURD, OR SQUASH GOURD.

A species of large pumpkin or gourd, is a common vegetable

seen on the tables of Europeans. "When boiled," says Wight, "it resembles in taste a fine tender carrot."

Cucurbita maxima.

ရွှေဖရုမ်။ လုးခဲ၇. လူ၎ခ့။

WHITE GOURD, OR PUMPKIN.

The Karens and Burmese cultivate a species of pumpkin or gourd, never eaten by Europeans, which they esteem a valuable addition to their curries.

Benincasa cerifera.

ကျွောက်ဖရုမ်။ လုးဘၢ့. လူ၎ခိုၢ်။

SNAKE GOURD.

A curious contorted gourd, peculiar to India, is in very general demand for vegetable curries. The plant is of easy culture on trellises around the doors of the native cabins, and the fruit often grows two feet long, beautifully striped, small, and tapering, so that streaming down from the trellis, they immediately remind one of striped snakes suspended from the foliage of trees.

Trichosanthes anguina.

ပဲလင်မွှေ။ ကဝ့၇ခလယး. ဝ့ကလၢ်။တကိဂုၢ်။

BITTER GOURD.

This is a very bitter gourd of the same genus as the preceding, but unlike that, this is eaten by the natives only.

Trichosanthes cucumerina.

သဘွတ်ခါး။ ထကိၤခ၂. တကိခဉ်။

BOTTLE GOURD, OR WHITE PUMPKIN.

The bottle gourd grows luxuriantly, and several varieties may be seen about our Indian cabins.

Lagenaria vulgaris.

ဘူးဆင်စွယ်။ ထံၤလုၤဖ၂ထီ၇. ဒးထံဘၢ၎်။ထံမီ။

PENTANDROUS LUFFA.

This is a long gourd with a striped skin, considered by the natives a delicious vegetable.

Luffa pentandra.

သဘွတ်။ ထကိၤဖ၂ထီ၇. တကိဖးထီ။

ANGULAR LUFFA.

This luffa gourd has ten sharp ridges by which it may easily

be recognized, and Roxburgh says that with a little butter, pepper and salt, "it is little inferior to green peas."

Luffa fœtida.
" *acutangula.*
" *decandra.*

သဘွတ်ခဝဲးခဝဲး ဒံရွလံ့. တွလွတကွးတကိပျုး။

MOMORDICA.

Two or three varieties of momordica, a fruit the size of a cucumber, covered with tubercles, are used in curries.

Momordica Charantia.

ကျက်ဟင်းခါး။ ဂျင်ခါး။ ၁၇ခာ. ခီခါး

DIŒCIOUS MOMORDICA.

A species of momordica with small muricated fruit, is occasionally eaten by the natives.

Momordica diœca.

စပျက်။ ဖံရဖူ. ဖံဖူ။

CUCUMBER.

Cucumbers are consumed in immense quantities, but the Karens and Burmans seem to prefer them when large and yellow, rather than pluck them when green and tender.

Cucumis sativus.
" *utillissimus.*
" *usitata.*

သခွဘး။ ထံးခွာ. ဒံခွါ။

BRINJAL.

The vegetable egg, or brinjal, is one of the best vegetables in India. Several varieties are extensively cultivated and eaten by all classes.

Solanum melongena.

ခရန်။ ယၢ့. ၁ကိုး။

TOMATO.

The tomato or love apple, another of our delicious vegetables, abounds in Ava, and is cultivated to a limited extent in many of our gardens.

Lycopersicum exculentum.

ခရန်မြေဖုံ။ ၁ကိုယိုး။

OKRA.

The okra plant of the Southern States of America, as universal-

ly abounds in Burmah, and all over the East, as it does in the West Indies.

Abelmoschus esculentus.
Hibiscus "

ရုမ်ပတီ။ ရုမ်မတေ။ ၁၂ဘွျ၂ဘွျၤ. ၁၄်ဘျိၵ်ဘွျ။

MALABAR NIGHTSHADE.

This is a twining plant, with succulent stems and leaves, that the Burmese cultivate for spinage; and it is said to be not inferior to the common English spinage, which belongs to the same natural family.

Basella alba.

ဖြင်တိုင်။

NEPAUL SPINAGE.

Several varieties of the edible amaranthus are cultivated and eaten like spinage, and are sometimes denominated Nepaul spinage. Roxburgh says of one variety: "The tender succulent tops of the stems and branches, are sometimes served up on our tables, as a substitute for asparagus."

Amaranthus oleraceus.

ဟင်ကန္ဒယ်။ မူၤလၢ့. ကမ္ပၤလီ။

SPINOUS AMARANTHUS.

A spiny species of amaranthus grows spontaneously and is a common weed in some parts of the Provinces, which the natives use for a pot-herb.

Amaranthus spinosus.

ဟင်ကန္ဒယ်။ မူၤလၢ့ဆူၤအီၤ. ကမ္ပလီအဆှုၵ်အိၵ်။

PURPLE AMARANTHUS.

McClelland mentions, two other species.

Amaranthus atropurpureus.
" *polygamus.*

ONION.

The common English onion is sometimes cultivated, but the principal part of the onions seen in the bazars are it is believed of a different species.

Allium ascalonicum?

ကျက်သွန်နီ။ ၁၂ၢ့ခိၤ၁၂အဝီၤ. ပဘဝီၤ။

LEEKS.

The native inhabitants of Tenasserim are as much attached to leeks, as the Israelites were to the leeks and onions of Egypt, and they abound in their gardens.

Allium Porrum.

တောကျက်သွန်။ ၁၂၇၀၊ ပကျား။

PURSLANE.

Purslane is as common a weed in Burmah as it is in America, and is used by the natives for a pot-herb.

Portulaca oleracea.

မြေပျက်။ ၁၂ဖျိဒဲ့. ကပျိုးသိ၊

WATER DILLENIA.

A species of dillenia always found on the borders of streams, hence called water dillenia by the Karens, produces a large fruit, which is brought to bazar green, and considered a favorite vegetable with the natives.

Dillenia scabra !

သပြု။ စပှူ၂. စိုင်ထံ။

BAMBOO SHOOT.

The young shoots of some species of bamboo are sold in market for a vegetable. They are also used by Europeans for a pickle, and a preserve.

Bambusa.

ဝါးမြစ်။ ၀၂ဘ၂. ဝဉ်ဘိဉ်။

SEDGE ROOT.

The roots of a species of sedge are found among the vegetables though they taste like filberts.

Cyperus.

ဝက်မြစ်ဥ။ ဝက်ဖျက်စာ။ ဗဲ၂. ဆွဲ။ဝ်မရှ်။

LETTUCE.

Lettuce is cultivated to a considerable extent by Europeans and by Chinese gardeners in the large towns.

Lactuca sativa.

MUSHROOM.

Mushrooms are often seen in the bazar, and the Karens have names for sixty-four different species of mushrooms and the allied fungi. They distinguish the edible from the poisonous kinds, they say, by touching them with the lime that they eat with the betel. If the fungus turn red when touched, it is regarded as poisonous. But they are so careless or ignorant, that sickness and death often ensue after eating them.

Fungales.

မှို။ ဗ၂ဒ့. ကုး။

SPATHIUM ROOT.

There are one or two species of spathium, plants that grow in the water; one of which Voigt says, is found on the banks of the Irrawaddy, and has roots "nearly as good as potatoes."

Spathium chinense.

CAPSICUM.

Large quantities of Cayenne pepper, or chillies, of which we have two or three species, enter into all the native dishes, not in the form of pepper, but the fruit stewed or roasted is eaten with the food. One species, the purple capsicum, is quite an ornamental plant, and is sometimes seen in our flower gardens. It is not a native of India, and Roxburgh thought it was introduced from the Moluccas.

Capsicum minimum.
" *grossum.*
" *purpureum.*

ငရုပ်။ ဆွဲ၂၂, မိုဟဲခင်။ မိုဂံဒင်။

BURMAN BORAGE.

Though no species of *borago* has been found in Burmah, yet there there is an aromatic species of *plectranthus* which Roxburgh says is a good substitute for borage. "The leaves," he says "are delightfully fragrant, as indeed are all parts of the plant, and they are frequently eaten with bread and butter, also bruised and put into country beer, cool tankards, &c." It is in common use in Burmah as a pot-herb.

Plectranthus aromaticus, Roxb.

ပန်ဘူ။

CEREALS.

The cereal grasses commonly grown within the tropics, do not appear to be as nutritious as those of temperate climates. Rice and millet are not equal to wheat and oats. The Burman books say, there are seven kinds of *saba*, or cereals, in which they include *pai* or beans.

ကောက်။	*rice*	ပုပ္ပဏ္ဏ။	(*Pali.*)
သလေး။	"	သာလိ။	"
လူးနတ်ကောက်။	*wheat*	ဂေါဓုမ။	"
မုယော။	*barley*	ယဝ။	"
ပြောင်း။	*millet*	ဝရက။	"
လူး။	*millet-paspalum*	ကဒြုသ။	"
ဆပ်။	*millet-panicum*	ကင်္ဂု။	"
စဲ။	*beans and peas*	အပရဏ္ဏ။	"

RICE.

Rice is universally cultivated, and cultivation has produced many varieties. The Karens have distinctive names for more than forty, and Karen mountain rice is preferred by many to that which is raised by the Burmese on the low lands; yet it is said not to be so nutritious, and on this account bears a less price in bazar. It is of all colors from ivory-white to coal-black.

Of the black rice the Karens prepare a kind of bread, which to them supplies the place of gingerbread. A portion of seethed rice is poured into a large mortar with a prodigious quantity of sesamum seeds. Two women then take their strong ebony pestles and pound it, striking alternately until it becomes a light bounding mass. It is then thrown upon the eating stand, when the whole family seat themselves around it in oriental stye, and dissever it with their sabres.

The Karens have another mode of preparing this kind of rice, which is particularly convenient for travellers. A quantity unboiled is thrust into joints of small bamboo, a little water added, and the orifice closed up. It is then roasted, and if eaten with a little butter and salt it is most delicious. The Karens select only two varieties of bamboo for this pnrpose, and these impart to the rice a sweet delicate flavor.

The Karen rice is cultivated in quite a different manner from the lowland variety raised by the Burmese. It is planted in April while the ground is yet dry, and the early kinds are reaped in August. The Burmese rice, on the contrary, is sown broad cast on the inundated fields in June, and is not ready for the sickle till November.

Oriza sativa.

ကောက်စပါး၊ စပါး၊ သလေး၊ ဘုၢ. ဘု၊

WILD RICE.

The lowlands of Martaban Province and Pegu are covered with a species of wild rice, which is said to have the instinct of rising with the advance of the flood that annually overflows the land on which it grows. On account of this peculiarity, Major Berdmore endeavored to introduce it into cultivation in Shwaygyen, where the inhabitants often lose their crops on the low lands from the high floods. Mr. Clements, of the forest department, says he has seen it cultivated in Aracan by the Kyens, who prefer it to use in distilling spirits.

Oryza sativa?

နှက်စပါး၊ စပါးမျိုင်း၊ ထိန်ပှင်ဘု၊

HOLCUS MILLET.

A species of millet of the Linnean genus holcus, is often grown

by the Karens, and occasionally by the Burmese. This is the millet designated in Ezekiel 4 : 9.

Sorghum vulgare.
Holcus Sorghum.

ပြောင်း။ ရှစ်ဗွီ။ (*Tavoy.*) ဒွံ၇. ဒွံ။

PANICUM MILLET.

One or more species of millet belonging to the genus panicum, are raised to a limited extent in Pegu, but are seen in every field in Karenee.

Panicum.

ပြောင်းလယ်ကောက်။ ဆပ်ဗွီ။ ဒွံ၇ခဲ. ပ့ၢ်ဝမဉ်။

SORGHUM MILLET.

A millet plant is occasionally seen, which in the United States is called "broom-corn," it being there manufactured into brooms.

Sorghum saccharatum.

ပြောင်း။ ဖ့း. ပ့ၢ်။

COIX MILLET.

A species of coix, Job's tears, has large esculent seeds, which are parched, like Indian corn in America, are often for sale in the bazars, and are cultivated very extensively by the Red Karens.

Coix indica?

ကလိပေါက်ပေါက်။ ဖ့း. ဖ့ၢ်တဘဲ။

MAIZE.

Maize, or Indian corn, is more generally grown than millet, and "green corn" is a common article in market, but it is hard and insipid, decidedly inferior to American corn.

Zea Mays.

ပြောင်းဖူး၊ ဘုၢခဲ၇. ဘုခ့။

WHEAT.

Wheat is grown largely in the neighborhood of Ava, but I have never seen it under culture in British Burmah, although Commissioner Durand made an attempt to introduce it.

Triticum vulgare.

လူးနှတ်ကောက်။ (*Classic name.*)
ကုလားစပါး။ (*Vulgar* ")
ဂျုံစပါ၊ (*Bengali* ")
ဘုၢကျ့ၢ့. ဘုကျူဉ်။

BARLEY.

"This last grain," says Crawfurd, speaking of barley, "is not known to the natives, and when we pointed it out, they imagined it to be unripe grains of wheat." Notwithstanding this testi-

mony, the Burmese have a name for barley which frequently occurs in their books. It constitutes one of their seven kinds of *saba* or cereal grasses, and its corresponding Pali name is identical with the Sanscrit name of barley.

Hordeum hexastichon.

မုယော။ မုယိ၊. မုယိ။

BAMBOO SEED.

In times of scarcity the seeds of the bamboo have often been used by the Karens as a substitute for rice.

Bambusa.

ဝါး။ ဝ၂. ဝဉ်။

GRASSES.

Griffith collected nearly one hundred different grasses in the Provinces, but I am not aware that the description of a single species has ever been published.

CHRYSOPOGON.

The most common grass on the coast is a species of the modern genus chrysopogon, concerning which, Roxburgh well remarks: "Its seeds are exceedingly troublesome to those who walk where it grows, as they stick in the stockings, and produce a disagreeable itching."

Chrysopogon acicularis.
Andropagon.

ဝှမ်မျစ်၊ နှ၊ဆ၂ဆဲ၇. နိုင်ကွက်လိုက်၊

PANIC GRASS.

Several very common grasses belong to the genus panicum. One species grows about three feet high, and after a field has been subdued, it will often spring up so thick that every thing else is destroyed. Cattle eat it both dry and green.

Panicum.

CREEPING PANICUM.

A creeping species of panicum is one of the most abundant grasses on the coast, but it is much less conspicuous than many others.

Cynodon Dactylon?
Panicum "

GUINEA GRASS.

Guinea grass is grown by a few Europeans, and it does as well as the indigenous species.

Panicum jumentosum.

ANDROPOGON.

Several species of andropogon, as the genus is described by Roxburgh, are among our most abundant grasses.

Andropogon.

ELEUSINE GRAM.

Dr. McClelland mentions a gram in Pegu, produced by

Eleusine corocana.

SETARIA.

A species of setaria, which the Karens call "horsetail grass" is scattered all over the Provinces.

Setaria.

ELEUSINE.

Tufts of eleusine are conspicuous every where among other grasses.

Eleusine indica?

ဆင်ငိုဖျက်။ ပိတဒဲ။

MEADOW GRASS.

Meadow grass has one or two representatives among our most conspicuous grasses.

Poa.

PASPALUM.

One or more species of paspalum are products of our fields.

Paspalum.

ANTHISTIRIA.

In the Karen jungles I have noticed a large grass with lax panicles and very long awns belonging to this genus.

Anthistiria.

INDIA CLOVER.

The most valuable grass in the country is not a proper grass, but, like the English clover, is a leguminous plant. It is a species of hedysarum, "which in India," says Dr. Wight, "supplies the place of the species of *Trifolium* and *Medicago* in Europe." In other words, the farmer finds it a good substitute for clover and lucerne; and there is another leguminous plant at Tavoy, *Smithia sensitiva*, which is said to make "excellent hay."

GROUND RATTAN.

The sea pink, or ground rattan, is one of the most curious grasses in the country. It may be seen on all the sandy beaches, but more particularly at Monmagon, where it covers the sands with its creeping stems and spiny leaves, and its loose umbels running about like things of life: "The male spikes, congested into an umbel," says Dr. Cleghorn, are carried by the wind to the female flowers which are fascicled on a distinct plant, and being light and spherical, the Dutch call them wind-ball. Rumphius alludes to this plant, as being connected with a su-

perstition among the natives, who, seeing the capitula carried along the shore by the sea breeze, think they are propelled by the devil."

This grass is cultivated on the sea beach at Madras for the sake of its sand-binding properties, and for its tendency to increase the land.

Spinifex squarrosus, Linn.
Polygamo-diœcious

MEDICINAL PLANTS.

The Anglo-Burmese Provinces are rich in medicinal plants, both in number and quality. Lindley's Floro Medica contains descriptions of all the known medicinal plants in the world, and more than a tithe of the whole number may be seen growing in Pegu, or on the Tenasserim coast. Were we deprived of European drugs, and left to our own resources, we could find good substitutes for almost every article in the Medical Flora.

Besides those to which separate paragraphs have been allotted, the bark root of the red cotton tree, and the roots of the clitoria, are emetic; and the root of *Tylophora vomitoria* has been pronounced by Indian practitioners not inferior to ipecacuanha for any of the purposes to which that medicine is applied. *Cassia fistula* pods, the chebula fruit, the root of the heart seed, the seeds of the sapodilla, Otaheite gooseberry, and physic-nut, are aperient or purgative. The gum of the white cotton tree, the bark of *Wrightia antidysenterica*, and the peel of the mangosteen, are prescribed in bowel complaints. The green fruit of the papaya, the root of the Persian lilac, and the fruit of the Rangoon creeper, are vermifuges. The bitter roots of *Sida acuta*, and *Tephrosia purpurea*, and the seeds of the musk-mallow or musk plant, are deemed cordial and stomachic, and the bark of *Guilandina Bonduc*, is considered a good substitute for cinchona where that cannot be had. The decocted leaves of the goat-footed ipomœa are used as an external application in cholic. The leaves of *Vitex trifolia* are applied in diseases of the spleen. The bark of the white plumbago root will raise a blister, it is said, almost as quickly as cantharides.

The oil of the cashew nut "has been used successfully in eating off ring-worms, cancerous ulcers and corns." The mango tree exudes a large quantity of gum-resin resembling bdellium, and our indigenous pine can furnish any quantity of turpentine. The bark of the root, the leaves, and the fruit of the Bengal quince, are as popular as the root, bark, flower, and fruit of the pomegranate, which have been famous for their medicinal properties ever since the days of Celsus.

Nor are the Burmese deficient in knowledge how to apply the medicinal resources of their country. A Burmese doctor in Toungoo can produce a dozen creditable witnesses that he has cured hydrophobia after it has been fully developed; a disease that has been deemed incurable. The remedies on which he principally relied in the early stages of the disease, were a species of indigo plant, and the bulbs of a wild crinum found all over the country. A priest, in one of our Toungoo kyoungs, professes to have a specific for beriberi. I translated his prescription for Gen. Johnson and found it to consist of twenty or thirty different articles, some of them sufficiently powerful. Native prescriptions deserve more attention than has been hitherto bestowed on them. In the midst of much chaff are often found grains of wheat which more than repay the labor of sifting; and a few grains of gold are worth the trouble of washing as many bushels of sand. Dr. Morton has introduced the use of a pill among the Karens which is deservedly the most popular medicine they have for cholera and a numerous tribe of allied diseases. It is made of opium, assafœtida, and black pepper; but for the black pepper, Dr. Bean, who also made up several thousands of the pills for the Karens, substituted ginger and chillies. The prescription, however, was originally a Hindu remedy in the form adopted by Dr. Morton.

GAMBOGE.*

Three works in my possession describe gamboge, each as the product of a different tree; a fourth represents all to be wrong, and the fifth suggests a different plant still. One refers it to *Cambogia gutta*, a plant which, as described by Linnæus, has probably no existence. He described a Ceylon plant, "and it is now quite evident," says Dr. Wight, "that the character of the flower and ovary is taken from one specimen, and that of the fruit from a different one, owing to the imperfection of his specimens, and his not being aware, that the lobes of the stigma afford a sure indication of the number of cells of the fruit."

Another refers it to *Garcinia Cambogia*,(1) but Dr. Wight says that the exudation of this tree is "wholly incapable of forming an emulsion with the wet finger," a statement known to be correct. The tree is very common in the Tenasserim Provinces, but the bright yellow exudation it produces is certainly not gamboge.

A third, refers it to *Stalagmitis Cambogioides*,(2) but Dr. Wight remarks: "The juice of this tree differs so very widely in its qualities from good gamboge, that it can never be expected to prove valuable as a pigment."

(1) *Garcinia Cowa*, Roxb.
(2) *Xanthochymus ovalifolius*, "

* Extracted from an article communicated by the author, in the Journal of the Asiatic Society for July 1847.

Dr. Graham has described a Ceylon tree under the name of *Hebradendron Cambogioides*, which is said to produce good gamboge; but no gamboge has ever been exported into the English market from Ceylon. Thus it would appear, to use the language of Dr. Wight, that "the tree, or trees, which produce the gamboge of commerce, is not yet known."

Dr. Helfer, who was employed by government as a scientific naturalist in these Provinces, reported: "The gamboge of this country dissolves very little with water, and consequently does not yield a yellow emulsion as the common *guttiferæ*. It will never serve as a colour, but promises to give a very beautiful varnish." This statement was controverted by a writer in our local periodical at the time, who said he had obtained "fine gamboge of the very best description" from our jungles; in which he was no doubt correct, but he erred when he added, that it came from the "true *Stalagmitis Cambogioides*;" for that plant has a quinary arrangement of its flowers, while the arrangement of the flowers in those that produce gamboge, in these Provinces, is quaternary.

The hills that bound the valley of the Tavoy river, on both sides, from their bases to their summits, abound with a tree which produces a bright gamboge. It is Roxburgh's *Garcinia pictoria*, which he knew produced gamboge, but which he said was liable to fade. As soon as I had satisfied myself of the identity of the trees by an examination of the inflorescence of our plant, compared with Roxburgh's description; I coloured a piece of paper, one band with this gamboge, and another with the gamboge of commerce; and subsequently exposed both to the weather equally for more than twelve months, but without being able to discover that one faded any more than the other.

South of the mouth of Tavoy river, and throughout the province of Mergui, there is found on the low plains at the foot of the hills, and on the banks of the rivers, almost down to tide waters, another species of garcinia that also produces good gamboge. I have no doubt but it is the tree from which Dr. Griffith furnished Dr. Wight with specimens, and of which, the latter says, "I refer doubtfully to Wallich's *G. elliptica*." We will call it then *G. elliptica*, a species which Dr. Wight has on his list of "species imperfectly known." The foliation and female flowers are, however, very well described, and to complete the description, I may add, the male flowers are pedunculated, but the peduncles are short, and they might be characterized as subsessile. The anthers, like those of the female flowers, are sessile, depressed or flattened above, and dehisce circularly. The ripe fruit is globose, and not furrowed.

Neither Wallich, Wight, nor Griffith appear to have been at all aware that gamboge was a product of this tree. Dr. Wight, in a recent number of his Neilgherry Plants, says: Two species

of the genus garcinia are known to produce gamboge; most of the others yield a yellow juice, but not gamboge, as it will not mix with water." The species which he has described as producing gamboge, and to which I suppose he refers, are *G. gutta*, or *H. Cambogioides*, (Graham,) and *G. pictoria*, (Roxburgh.)

In its appearance to the eye, and in its properties as a pigment, I have failed to discover the slightest difference between the exudation of this tree, and the gamboge of commerce. The Burmese priests use it occasionally to dye their robes, the Karens their thread, and it serves equally well in colouring drawings. It is also used by the native doctors in medicine, but not extensively.

Dr. Lindley, in his new work the Vegetable Kingdom, says: "The best gamboge comes in the form of pipes from Siam, and this is conjectured to be the produce of *Garcinea Cochinchinensis*." Now as *G. elliptica* is spread all over the Province of Mergui, is it not probale that it also extends into Siam, and that the Siamese gamboge is the product, a part at least, of this tree?

Specimens of the gamboge were sent up with the above communication to Calcutta, and the Secretary of the Asiatic Society wrote in reply: "Our best botanists here consider that you have hit upon the true tree at last."

Eight years after the above appeared in the Journal of the Asiatic Society of Bengal, Dr. McLelland published in his Report on the Teak Forests of Pegu:

"*Gamboge. Xanthochymus ovalifolius*, which, according to Wight and Arnott, is the only plant in Ceylon that yields gamboge fit for the arts, is found in the Rangoon, Pegu, and Toungoo districts, but is rather scarce. *X. pictorius*, which is very plentiful, also yields gamboge, but probably of a less valuable description, as also *Garcinia cowa*, or wild mangosteen tree, which is likewise common."

This is not very creditable to the reading of a superintendent of the H. C. Botanical Garden, Calcutta, who, by virtue of his office, is the first botanist in India. It is quite true that Wight and Arnott in their Prodromus wrote as stated in 1834; but Indian botany has made some progress in twenty years, and Dr. Wight corrected himself in his Illustrations, remarking of *X. ovalifolius*, that it is "the tree hitherto supposed, on most insufficient grounds, to be the source of this valuable substance." Of *X. pictorius* he wrote: "It does not possess the elements of gamboge;" and of *Garcinia cowa*, the exudation of this tree "is wholly incapable of forming an emulsion with the wet finger."

Thus it appears that not one of the three trees to which reference is made produces gamboge; while the two species, in the Tenasserim Provinces, that do furnish it, are not mentioned.

Garcinaia elliptica.

သနတ်ထော်။ ဘွဲ့ဘာမျှ. ဝဲးဘီမျှဉ်ဖးဒိဉ်။

Garcinia pictoria.

သနတ်ထော်။ နါးမဲုကျ. ဝဲးဘီမျှဉ်ပြီဝိုး။

CAMPHOR.

One of the most abundant weeds throughout Burmah is a species of Blumea, that grows six to eight feet high with leaves like mullen, which, when bruised, emit a strong odour of camphor. Many years ago the Tavoyers informed me, that they were in the habit of making an impure camphor from the weed by a very simple process; but Mr. O' Riley was the first to make a good article from it, and to bring it to public notice. He made more than a hundred pounds, and the specimens which he sent to Calcutta were reported: "In its refined form, it is identical in all its properties with Chinese camphor."

The plant is so abundant, that Burmah might supply half the world with camphor. Wherever the trees are cut down, this weed springs up, and often to the exclusion of almost every thing else; so that an old clearing looks like a field under cultivation.

Mr. O'Riley sent flowering specimens of the plant to Dr. M'Clelland for identification, who forwarded them to Dr. Voigt of Serampore, and subsequently reported: Dr. Voigt states that it belongs to De Candolle's genus Blumea, and is so far as he can see a new species. It is without doubt the same plant as that which appeared in Wallich's Catalogue a quarter of a century ago, as *Conyza grandis,* and which De Candolle subsequently described as *Blumea grandis.* Wallich's specimens were from Tavoy, without flowers, and De Candolle describes the leaf as nine inches long with the petiole, by three wide, ("*cum petiolo poll. longa* 3 *poll. lata,*) serrated, and bearing on the petiole five or six remote linear acute lobes, ("*petiolo lobulos* 5—6 *distantes lineares acutos gerentibus,*) which corresponds very accurately with some specimens of our camphor plant, but it does not correspond to any other species of Blumea in the country with which I am acquainted.

Blumea grandis.

ဖူမ္မသိမ်။ တလပ်ကျုမ်ကျုမ်။ *(Tavoy.)*

ဒီဂမိုးလာ့. ဒီဂမူးလာ့. ဒီဟုး။

ပရုပ်။ *Camphor* ကပ္ပုရံ။ *(Pali.)* ပြူး။ ဟူး,

GUM KINO.*

Dr. Royle, in a valuable article on gum kino, ostensibly enumerates all the various regions from which it has been imported into England; but does not mention it as being a product of the Tenasserim coast. Yet long before Dr. Royle compiled that communication, more than one consignment had been made by parties in Maulmain, to houses in London, of gum kino to the amount of a thousand pounds.

It was brought to Maulmain by an English merchant from the Shan States, and stated by him, as our Commissioner at the time informed me, to be the production of the padouk, the same tree as the one in Maulmain thus denominated by the Burmans. Several years before, I had directed attention to this tree as producing an astringent gum resembling gum kino, but the medical officer, to whom I submitted specimens, said it was "a kind of dragon's blood." However, after Dr. Morton came to the Provinces, he tried it in his practice, and found it, in its medicinal virtues, identical with the gum kino of the druggists.

The next inquiry that arises is, for the genus and species of the padouk. When I first came to the country, all the English residents of my acquaintance called it "Burman senna," and the surgeon of the station told me that he believed it was a species of senna. Dr. Malcom, in his Travels, writes: "Padouk, or Mahogany, *(Swietenia mahogani)* is plenty in the upper provinces, especially round Ava, found occasionally in Pegu." In a native Pali dictionary, found in the Burmese monasteries, padouk stands as the definition of *pe-ta-tha-la*, and the corresponding Sanscrit word in Wilson's dictionary, is defined *pentaptera*; but the padouk does not belong to the genus. In Piddington's Index, however, *peetshala* stands as the Hindee name, and in Voigt's Catalogue, *peet-sal* as the Bengalee name of *Pterocarpus marsupium*; and this brings us nearer the truth, for padouk is a name common to two different species of pterocarpus, but which look so much alike that they are usually regarded as one species.

One has "long waving branches, with their extremities generally much drooping, racemes axillary, flowers numerous, deep orange yellow, and very fragrant, filaments ten [often] united into two equal distinct bodies of five each; stile rather shorter than the stamina; and stigma acute;" which is the description of *P. indicus*; but on full examination I think it is the species described by Dr. Wight as *P. Wallichii* that was marked in Wallich's Catalogue as *P. dalbergioides*. There are, however, several points of difference, but not more than there are between Wight's description, and the coloured drawing that he gives of this same species. In the drawing, the leaflets are pointed wholly unlike our plant, but in the letter-press description there is an exact

*Extracted from an article communicated by the author, in the Journal of the Asiatic of Society for August 1848.

correspondence—in the drawing, the stamens are represented as divided one way, in the description another, and both modes of division, with some others, are seen here on the same tree. This loose way of describing and figuring plants makes it exceedingly difficult for an out-door botanist to identify nearly allied species with book descriptions, made perhaps originally from isolated dried specimens.

The other species has leaflets which correspond both to Roxburgh's description, and to Wight's figure of *P. dalbergioides*; and though it differs in some other respects, yet I think it is the same tree.

Both these species produce an astringent gum, which, has been exported for gum kino, or whether a mixture of both, which is most probable, I am not able to say; possibly neither. It may be that *P. marsupium* is found in the Shan States, for it grows in Assam, where it would doubtlessly he called padouk by a Burman. Be that as it may, it is certain that these Provinces can furnish the commercial world with a large quantity of gum kino. The exudation of our padouk, one of the most abundant forest trees has been proved by experiment, to possess all the properties of gum kino, while the product of the neighboring provinces, whose only avenue to market is through our territories, has been bought by the London druggists for the gum kino of the Pharmacopœia.

Pterocarpus Wallichii.
" *dalbergioides.*

ပုတောက်၊ ကရွကျွဲ့. ကျွဲကျွဲ့. ကျီကျွန်၊

PULAS KINO.

The exudation of the butea tree, or pulas kino, when exported to England a few years ago was recognized "as being the gummi rubrum astringes" of the old druggists. M. Guibourt of Paris, to whom some of it had been sent states his opinion in his work on drugs, that it is the original "kino which had entirely disappeared from commerce, and was once so much valued, as to be sold for nearly a guinea a pound." Amherst Province, or the Sittang valley can furnish almost any quantity of the article, the tree which produces it being one of the most common denizens of our forests.

Butea frondosa.

ပေါက်၊ ဖြာထိုးကိုး. ဖိထိန်ကိုး၊ ဗီဗီန်၊

DRAGON'S BLOOD.

There is a species of ratan in the forests, which the natives call "red ratan," that produces a red exudation like dragon's blood.

Calamus draco ?

ကျိမ်နီ၊ ဝှစီ၊ ဝှါဝီ၊

LIQUID AMBER.*

"Did you ever see in this country the tree which produces the balsam of Tolu?" a gentleman once asked me. "No," I replied, "I never did." "I have one in my compound," he continued; but unfortunately his compound was two hundred miles distant.—Years passed away, and I found myself beneath this tree in flower, and soon discovered that it was not *Myrospermum toluiferum*, but *Liquidamber Altingia;* and that it produced not balsam of Tolu, but liquid storax.

The tree is indigenous on the Tenasserim coast, and in some sections is quite abundant. A considerable stream in the province of Mergui derives its name from this tree, in consequence of its growing so thick on its banks. It seems to have escaped the notice of Dr. Helfer, for, if I recollect right, it is not once alluded to in any of his reports, nor has it ever been brought to notice by any one; if we except a Catholic priest, a resident of Rangoon, who has introduced it in a little Burmese medical treatise, that was lithographed a few years ago by Col. Burney, who took a lithographic press with him into Burmah.

This gentleman, however, seems to have mistaken the tree, for he describes it as the one that produces the balsam of Peru, *Myrospermum peruiferum*, and which belongs to a different natural family. The medicinal properties of their exudations too, are materially different.

Liquidamber Altingia.

နန်ထရုတ်၊ နါတရုဒ်. နိုင်ကြူ၊

INDIAN GUM ANIME.

In Hindustan, *Vateria indica* produces a resin which is sometimes called copal in India, and gum anime in England; but it does not appear to be known that in Burmah, another species of the same genus yields almost a precisely similar resin.

When in bloom the tree is quite ornamental, and diffuses the the fragrance of its flowers for a great distance around.

Vateria lanceæfolia, Rox.

လက်တောက်၊

AMERICAN GUM ANIME.

The gum anime, or Courbaril locust tree, was introduced by Major Macfarquhar, and is easily propagated.

Hymenæa Courbaril.

GUM BENJAMIN.

Gum Benjamin, is produced by a tree in the province of Mergui, that I have not seen, and in former years constituted a considerable article of export.

Styrax benzoin?

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* Extracted from an article communicated by the author, in the Journal of the Asiatic Society for June 1848.

GUM-ARABIC.

The true gum-arabic tree is not in the country, but the vachellia-tree produces a gum with all the properties of the gum-arabic of commerce; and the cashew-tree, which grows all over Burmah, "annually exudes," says Voigt, "from 5—12 pounds weight, of a fine white transparent gum, like gum-arabic, and not inferior to it in virtue or quality"

Vachellia Farnesiana.

နန်းလုမ်မှိုင်း၊

TRAGACANTH.

African gum tragacanth is produced by a species of sterculia, a genus which is represnted in Burmah by half a dozen different species, several of which produce an exudation similar to tragacanth. McLelland enumerates four species.

Sterculia ramosa.
" *fœtida.*
" *campanulata.*
" *piperifolia.*

COTTON TREE GUM.

The cotton trees produce medicinal gums. The white cotton tree, Lindley says, "yields a gum which is given in conjunction with spices in certain stages of bowel complaint. The bark of such trees is, however, reported to be emetic; this is more especialyl the case with

Salmalias."

CUTCH.

Acacia catechu, which produces cutch, is indigenous in Toungoo, and is so abundant on the eastern side of the mountains, that Mr. Tracey found all the inhabitants of a Toungthu village of two hundred and fifty houses, constantly engaged in making cutch for the Shan market to be eaten with betel.

Acacia catechu.

ရှား၊ ဝလးစွ. ဝံးခှဲ၊

OPIUM.

I have never seen the poppy under culture, but opium is eaten to a very considerable extent by the Burmese, and the drug is easily procured.

Papaver somniferum.

ဘိန်း၊ ဘွ့. ဘံ၊

BHANG.

It is a singular fact that the hemp-plant in tropical countries exudes a gum, that is "a very powerful stimulating narcotic," which it does not produce in cold countries. The dried leaves

under the name of bhang partaking of this narcotic principle, are used all over India as a substitute for opium, to produce intoxicating effects. Under the Burmese government at Tavoy, no one was allowed to cultivate the plant without a licence from government. Sometimes a general permission was given, and at other times a general prohibition would be issued.

Cannabis sativa.

ဘင်း၊

TOBACCO.

Tobacco which was introduced from America within a few centuries, is now more universally used in Burmah, than it perhaps ever was in its native country. The Karens raise it for their own consumption, and the Burmese both cultivate it, and import it from Rangoon.

Nicotiana Tabacum.

ဆေး၊ ယဲခူး. ကဝိန်၊တဝိန်၊

THE WHITE THORN APPLE.

The white datura has little to recommend it in point of beauty, or pleasantness of association, yet we find it celebrated by Heber in his "Walk in Bengal."

"While to the cooler air confest
The broad datura bares her breast,
Of fragrant scent, and virgin white,
A pearl around the locks of night."

It is often seen blooming around native dwellings, and may possibly be used in Tenasserim for the same bloody purposes as in India. The common stramonium of Europe and America "is perhaps only a variety."

Datura Metel.

" *alba.*

ပဒိုင်းခပ်တာ၊ ပဒိုင်းဖြူ၊ ပဒိုင်းခါး။ *(Tavoy.)*
ယူးဗျူ-ပီးမွန်း ဘကီးဗျုန်၊

PURPLE FLOWERED THORN APPLE.

Both the single and double flowered varieties of this species may be often seen near Burman houses, and children not knowing its poisonous character, somtimes eat the fruit with very serious effects.

Datura fastuosa.

ပဒိုင်းနီ။ ပီးမံန်. ဘကီးဗျုန်ဝါ။

NUX VOMICA.

The nux vomica, or poison nut, from which strychnos is extracted, grows very abundantly in the vicinity of Toungoo, and is found as far south as Maulmain. The pulp in which the seeds nestle is orange, not white, as described by Lindley, and is a fa-

vorite repast with native children, who say it is sweet when eaten the instant the fruit is broken, before exposure to the air; but but I have ever found it agreeably bitter, tasting like gentian.

The bark is used by the Karens in fevers, and it has often been sold in Europe for angostura, which has been used in intermittants to supply the place of cinchona. Dr. O'Shaughnessy says: "Brucca, which is extremely effectual in the cure of paralysis, atrophy, chronic rheumatism, *sciatica*, &c. may be obtained from it in great abundance."

Strychnos Nux vomica.

ခပေါင်။ ခမောင်။ ဝါသး။

PEGU UPAS.

A very large timber tree is found scattered in the forests from Mergui to Toungoo, the exudation of which is used by the Karens to poison arrows. I find that it belongs to the same genus as the famous poison tree of Java, the Bohun upas, but its oval leaves prove it to be a different species.

Its milky juice is intensely bitter, and, when swallowed, produces sore throat, as I know by experience. When dry it is a hard dark colored substance resembling opium. Arrows that have been smeared with it and hung exposed to the air, lose their power to produce death, and there is said to be a difference in the virulence of the poison at different times of the year.

When a Bghai is wounded by a poisoned arrow, he pays little attention to the wound, but seeks at once an antidote in an internal medicine. The hog's plum, *Spondius mangifera*, is considered a specific, eaten either green or dry; but when that cannot be obtained, alum is the next best remedy. This treatment would indicate that astringents counteract the effects of the poison on the system. The wound, if dressed at all, is bound up in cloths saturated with a vinegar from bruised young shoots of bamboos.

The Pakus, like the homœopathists, believe that *similes similibus curantur*, and on being wounded buy a poisoned arrow, immediately eat a little of the poison till it produces vomiting, and the vomiting is said to counteract the effects of the poison. They also use alum occasionally, but as an external application to the wound.

The Burmese again believe in the virtue of the white sweet potatoe, which they chew an' bind on the wound as a poultice.

If it prove to be a new species, from the form of the leaf, I propose to call it

Antiaris ovalifolia.

ဆိတ်ပင်။ မြှားဆိတ်။ ရိုးကျပင်။

စုဉ်ခွဉ်။ စံဉ်ဝါဉ်။

COCCULUS INDICUS.

This twining shrub, well known for its poisonous seeds, Dr. Helfer reports as indigenous in the Tenasserim Provinces, but I have never observed it.

Anamirta cocculus.

SENNA.

I have never seen the true senna under culture, but the dried leaves are constantly for sale.

Cassia elongata.

ပွေးကိုင်း။

FŒTID CASSIA.

The fœtid cassia is one of the most abundant weeds in this country, and it has a place in the Materia Medica, because its leaves are used to adulterate Aleppo senna, and are said to be cathartic.

Cassia Tora.

ဒန့်ကွဲ။ ဒံ၊ကွ၊ဂှ့. စံဂ်စါ။

WINGED CASSIA.

This species bears a profusion of gaudy, yellow flowers, and is much cultivated by the natives for its medicinal properties in diseases of the skin. I have seen it cure virulent ring-worms, in two or three applications of the juice of the leaf, after all other remedies had failed. Gen. Johnson says he has seen the Burmese use the leaves as a substitute for tea. Though an exotic, the plant is so naturalized that it is often found apparently growing wild.

Cassia alata.

သဿီဝဓဲစလီ၊ ဓဲစလီကြီး၊ ဖံတခၵဖၵဒိ၊. ဘံ၊ဆ၊ရှီ၊
ပံ၊ဝခးဖးဒိဉ်၊ ကဝံဉ်ဖြီ

WESTERN CASSIA.

There is a small species of cassia that I have occasionally noticed in native cultivation for medicinal uses, which was originally introduced into India from the West Indies.

Cassia occidentalis.

ကလော။

COW-ITCH.

The cowhage, or cow-itch, with its stinging pods, is very common in the Karen jungles from Mergui to Toungoo.

Mucuna pruritus.

ဓဲကဲဖိ။ ခွေလေး။ ဖျိုးယူ. ဆ၊ဒူ၊ဖိ၊ထီ၊. ဖျိုးယူ၊

MYROBALANS.

Myrobalan fruit is esteemed medicinal by the Burmese, and is

dried and sold among the drugs. The tree is indigenous, but not very abundant.

Terminalia Bellerica.

ဆန်ခါး။ ဖန်းခါး။ ဘွဲ့ကံ့. မါနါ။ ဘွဲ့ကံး။

BAMBOO-FUNGUS.

There is a fungus like a mushroom that grows at the root of the bamboo, hence called the bamboo-fungus, which is regarded by the natives as quite a specific for worms. It has also been introduced into European practice, and is regarded by some physicians as superior to any anthelmintic in the Materia Medica.

သံမှို။ ဝါမှို။ ၒၟၢဝၢမိၢ.
ကုၤဝၣ်မိၣ်။ ကုၤဝၣ်မိၣ်။

INDIAN SQUILL.

On the sea-shore at Monmagon may be often seen the green flowered Indian squill, the flowers springing from the bulb when it is leafless. The Burmese call it *pa-daing kyot-thwon*, the onion crinum.

Squilla indica.

ပဒိုင်ကျက်သွန်။

IPECACUANHA.

A pretty little annual, with a small saffron and orange-coloured flower, is quite common, and is characterized as the "ipecacuanha plant." It is not the true ipecacuanha plant, but the root is emetic, and is used by the negroes of the West Indies.

Asclepias curassavica.

JEW BUSH.

This American plant, which is used in the West Indies as a substitute for ipecacuanha, is seen in cultivation occasionally, and in the neighborhood of Calcutta it is as abundant as a wild plant.

Pedilanthus tithymaloides.

MUDAR PLANT.

The mudar plant is propagated for its medicinal properties, which are said to be very numerous, and European practitioners recommend the juice of the plant in cases of leprosy above all other preparations. We have two varieties, one with a cream-colored flower, and another with a black and purple tinge.

Calotropis gigantea.

မရှိုး။

CAJUPUT OIL.

An elegant little tree, with birch-like bark that produces cajuput oil, is indigenous in the Karen forests of the southern provinces, but I have not observed it north of the valley of Palouk river, in latitude about 13°.

Melaleuca Cajuputi.

CASTOR OIL.

The Palma Christi, or castor-oil plant, is very extensively cultivated by the Karens, who have two or three varieties. Until they were informed, however, by the missionaries, they were not at all aware of the medicinal properties of the plant; their object in planting the tree being to obtain the seeds to mix with their dyes, and fix their colours. Dr Helfer says: "The country produces, spontaneously growing, the ricinus or castor-oil plant," but this is quite erroneous.

Ricinus communis.

ကျွက်ဆူ။ မဟိုး. မာ်တိ။

CROTON-OIL.

The croton-oil plant is frequently seen under culture, and the seeds are administered by native doctors. Major Berdmore thought it indigenous in Shwaygyen. When the operation is excessive, they give the patient the juice of the sour lime, which is said to counteract the effect of the croton seeds. All the plants that I have examined belong to the exotic species.

Croton Tiglium.

ခံနမိုး ကုတမိုး. တနးကဖား ကဉ်နမိဉ်။

AVA CROTON.

Lindley says there is an indigenous, and allied species to the preceding at Ava, which is decandrous, while *C. Tiglium* has fifteen stamens.

Croton Pavana.

MANY-STAMENED CROTON.

The Burmese cultivate another species of croton, which grows into a thick bush, and whose seeds are also a strong purgative.

Croton polyandra.

သဒိဝါ။

WILD CROTON.

A species of croton, whose roots are used by the natives for a cathartic, abounds in some parts, especially on the Maulmain hills. This species is not described in Roxburgh.

Croton.

သက်ရင်းနီ။ ခွဉ်ပါ. ကဝ်ဂိုး။

RANGOON CROTON.

The natives describe another species of croton, common in the neighborhood of Rangoon, and occasionally found in the Tenasserim Provinces, which is a shrub three or four feet high, with properties similar to the preceding.

Croton.

သက်ရင်းကတော်။

WOOD-OIL COPAIVA.

Wood-oil is one of the most valuable products of Burmah; and the tree which produces the best quality is one of the most widely diffused of our forest trees. It yields too, very abundantly. Dr. Helfer wrote, that one trunk would produce thirty or forty gallons each season without injury to the tree. In the reports of the Agricultural and the Horticultural Societies of India, it is said: "The wood-oil, properly speaking, is a balsam, obtained from several species of dipterocarpus common in many parts of India. By distillation this balsam yields volatile oil, a resin being left behind. This oil, Dr. O'Shaughnessy found to be identical in chemical composition with that of the balsam of copaiva, and he had accordingly used it extensively in his hospital, with exactly the same medicinal effects." "Nor is this article," continues the Report, "likely to become of importance in medicine only; but also in the arts, in many of which copaiva is now used. Copaiva, by the latest 'dry price current,' was at five shillings sixpence the pound, while twenty pounds of the essential oil of wood may be obtained, of the very best quality, for about ten shillings."

Dipterocarpus lævis.

ကညည်။ စုဒိ၊ ဒိဒိ။

EN GUM.

The gum of this species, as well as that of the preceding, is used by the natives to make torches, and Major Berdmore writes: "The gum is used with assafœtida and cocoanut oil as an application for large ulcers.

Dipterocarpus grandifolia, Wall.

အင်။

NEEM TREE.

This tree Linnæus placed in the same genus as the pride of India, which it much resembles, but the leaves are more intensely bitter. It is cultivated by the Burmese for its medicinal qualities, for which it is famous all over India. The bark has been successfully used in India as a substitute for cinchona; the bitter oil of the fruit is a valuable anthelmintic; the seeds are used in the destruction of insects; and "the leaves," remarks Dr. Wight, "beaten into a pulp, and thus externally applied, act as a charm in removing the most intractable forms of psora, and other pustula eruptions.

Azadirachta indica.

သဝေသိုကမါခါး။ ကမျခ၊ကဘု. ကမါခဉ်ကဘီ။

TOUNGOO GENTIAN.

A small herbaceous plant that I have never met in flower, is common on the mountains of Toungoo, which has the taste and properties of gentian. The Karens use a decoction of the plant

in fevers. Dr. Brandis met with a species of crawfurdia at a height of 3556 feet, and this is probably the same plant.

Crawfurdia?

CHIRATA.

This well known Indian bitter is a common Burman medicine, but I have never seen the plant growing. It is considered a good substitute for cinchona, but it frequently acts as an aperient as well as a tonic. It is often confounded with another bitter, *kreet—Justicia paniculata.*

Agathotes chirayta.

ဆေးခါးကြီး။ ဝံ၂ခ၂. ကဝံ၎ခ၎၊

BÆL, OR BENGAL QUINCE.

The bæl, or Bengal quince, is cultivated extensively by the Burmese, and is highly esteemed for its medicinal properties. The extract of bæl is much used by Europeans in Bengal for diarrhœa and dysentery. The unripe fruit is cut into small pieces, dried, and a decoction made from them, as occasion may require, for the same diseases. "A sherbet made from the ripe fruit," says Mr. Long, "mixed with tamarind juice, is used in fevers, and is most valuable in dysentery. The leaves in decoction are used in asthmatic complaints; the young leaves are used as poultices in ophthalmia; and the mucous which surrounds the seeds is a good cement."

Ægle marmelos.

ဥရှစ်၊ ခိ၂, နိုင်မှုဉ်ကိုင်ခွဉ်။

SEA-COCOANUT.

This is not the famous *Cocos des mer* of the Seychelles, so long the wonder of the world; but a tree very common in the mangrove swamps; and growing near the shore, its fruit falls into the water and floats out upon the sea, which gives rise to its name. The fruit is not edible, but is exceedingly astringent, and regarded by the natives as a specific in cholera.

Xylocarpus Granatum

ပင်လယ်အုံး၊ ပ၊ယဲ၂ဖျိုး. ဒီဖြိုင်ဟံ၊

BLACK PEPPER.

The black pepper vine is often seen creeping up the trees, but it is not indigenous.

Piper Nigrum.

ငရုပ်ကောင်း။ စွံ၊ဝ၂. မိုင်ဂံ၎လွှုး။ မိုင်ဂံ၎မိ။

LONG PEPPER.

Long-pepper is in the bazars, but I have never noticed it growing.

Piper longum.

ပိတ်ချင်း။

GINGER.

Ginger is cultivated to a small extent, and some of the Chinese make a ginger perserve of the green roots, in imitation of that which comes from China.

Gingiber officinale.

ချင်းစိန်။ ရှင်။ (*Tavoy.*) အွေ့. ဝအွေ။

FENNEL-FLOWER.

The seeds of this plant, which were formerly used for pepper, are valued by the inhabitants for their carminative properties, but the plant is rarely seen in cultivation. The Hebrew word, which in Isaiah is rendered *fitches* designates this plant; but not in Ezekiel, where the original word for fitches signifies spelt, a species of wheat.

Nigella sativa.

စီမုန်နက်။ စံဗယ့, စမုဉ်ဌ။

BETEL-LEAF.

The betel-leaf is an article of commerce, being universally chewed by the Asiatic population with areca nut and lime, to strengthen the stomach. Karens plant the vines on their uplands, where there are tall forest trees. The branches of the trunks are lopped off, leaving only the topmost boughs, and the vines readily climb up and weave their dark, glossy leaves all over the summits, making a betel-vine farm a most beautiful object. Karen boys and maidens engage in these leaf harvests with great zest, and it is not uncommon for young men, in seeking companions, to inquire who are the most agile climbers of *poo-lah*, or betel-leaf trees.

Piper Betel.

ကွမ်းရွက်။ ဖုလ၂. ဝဘျူဉ်။

WILD BETEL-LEAF.

The Karen forests produce a wild species of piper, the leaf of which is used as a substitute for the common betel-leaf.

Piper.

တောကွမ်း။ ဖျ၂၂. ဒြီ၂။

SPILANTHES.

A species of spilanthes is planted by the natives for its medicinal properties.

Spilanthes acmella.

ဟင်းကလာ။ ဗ၂ခှ၂ဒိ၂. ဟိကလါဒါ။

CORIANDER.

Coriander seeds are used as a condiment for curries, as well as for medicine, and the plant is often cultivated by the Burmese.

Coriandrum sativum.

နံနံ။ နှ၂နှ၂, နဉ်နဉ်။

ANISE.

Anise seeds are much used by the native doctors, but I have never seen the plant under culture.

Pimpinella Anisum.

စမုန်စပါး။

DILL.

Dill is occasionally seen, and the seeds are constantly for sale in the bazars. This plant is the *aneethon* of Dioscorides; and Matthew's gospel, rendered in the received version *anise.* The Burmese do not distinguish it from caraway.

Anethun graveolens.

မွတ်။ စမှုန့. စမှုဝ်။

SOWA.

This is an East Indian species of anethum, possessing similar aromatic, and carminative properties to the preceding. It is often planted by the Burmese.

Anethum Sowa.

စမြိတ်။

CUMIN.

Cumin seeds are a common article in the markets, and the plant, I am told, is occasionally cultivated.

Cuminum Cyminum.

စိယာ။ စီရ။ (*Sanscritt.*) စံဂယၤ. စံသၤ

CARDAMUM.

The Karen forests of Tavoy and Mergui abound with cardamum plants: and while subject to the Burmese government, the Karens were required to collect the seeds and pay them in as tribute; but they gather very few now, as they can employ their time more profitably; and when they did collect, they were in the practice of mixing a spurious kind of cardamum with the true, the produce of a plant belonging to the genus amomum, believed to have been *A. Cardamomum.*

Elettaria Cardamomum.
Alpinia Cardamomum.

တာသာ။ မၤအံၤ. မဝ်အံး။

SWEET CANE.

The sweet cane, or sweet flag, is cultivated by the Burmese to a small extent for its medicinal properties, which some writers say are not duly appreciated. This is the sweet cane of the Scriptures, and not sugar-cane, as some have supposed.

Aeorus Calamus.

လင်ဟော။ လဟ့ဟ့. လီဂ်ဟ့ဂ်။

SASSAFRAS.

A species of sassafras abounds in the jungles, which seems to possess all the properties of the sassafras of America. I have never met with the tree in fruit or flower, but the leaf shows that it is not the *Sassafras afficinarum*.

Sassafras.
မှန်သင်း။ ကိုးလွှ. ကိုးလွှ်။

MINT.

Mint is sometimes cultivated by Europeans, but it does not flourish so well as in Europe.

Mentha viridis.

WILD MINT.

There is a species of wild mint in Tavoy, of which Roxburgh wrote: "This plant is very fragrant, not less so than our garden mint in Europe."

Dysophylla quadrifolia.
Mentha " "
ပင်စိန်း။ ဖြာဘူး. ဖြကဘိး။

Dr. McClelland says that the Burman *Pen-zeing* is

Ocymum vilosum.

CLEARING NUT.

The tree which produces the clearing nut is found in Pegu and Toungoo Provinces. The Burmese call it *Kha-boug-yæ-gyee*, or clear-water strychnos. "One of the seeds," says Roxburgh, "is well rubbed for a minute or two round the inside of the vessel containing the water, generally an unglazed earthen one, which is then left to settle. In a very short time the impurities fall to the bottom, leaving the water clear, and, so far as I have been able to learn, perfectly wholesome.

Strychnos potatorum, Willet.
ခပေါင်ရေကျည်။

ALOES.

A species of aloes is often seen growing in gardens, and the drug is also imported from Hindustan.

Aloe socotrina.
မုတ်။

ASSAFŒTIDA.

The Buddhist books represent the assafœtida plant as one of the ornaments of the Himmalay forest, where King Wathandia had to pass his days of banishment. The gum is much used by the Burmese doctors, but seems to be all imported. The Bur-

mese name, *sheing.kho*, appears to be derived from the Pali *heing-ku*.

Ferula Assafœtida.

ဟိင်ကု။ ရှိန်းခို။ ၎၊. ဝံခိဉ်။ ဟံဉ်ခိဉ်။

MANNA.

There is a tree scattered on the Karen mountains, which in the dry season exudes a sweet substance resembling the manna of the shops. I have observed it, in some instances, where it had dropped from the branches all around the base of a large tree like rain; and again, where it had gushed out of the trunk like a large mass of gum arabic. I have never seen the tree either in flower, or fruit, but think it belongs to the myrtle tribe, a family that produces manna in New Holland.

CINNAMON.

The mountains that separate the valley of the Tenasserim from the waters that fall into the Meinam produce a species of cinnamon, the bark of which is equal to some of the inferior kinds of cinnamon, or cassia in bark that is sold in the shops. The Karens in Tavoy sometimes collect it, and chew it with betel.

Cinnamon iners.

သစ်ကြီမို။ ခဒၢ့ရၢ. ကဒါရါ။

A tree of the Roxburgh's genus Laurus, is common at Toungoo, which Dr. Brandis refers to the modern genus *cinnamomum.*

Cinnamomum, Sp. ?

နလင်ကျော်။

CLOVES.

The clove tree may be seen in a few gardens on the coast, and cloves are abundant in the bazars.

Eugenia caryophillata.

Caryophyllus aromaticus.

လေးညင်းပွင့်။ လဝင်။ (*Pali.*) ကိုးဝဲးကဘၢ့
ကိဝါကဘီ။

ALL-SPICE ?

On the sides of some of the highest mountains in the province of Tavoy, I have repeatedly met with a tree but never saw it either in fruit or flower, which the Burmese call "wild clove tree." The young branches and the leaves taste very strongly of all-spice.

Eugenia. (*Pimenta ?*)

လေးညင်းမိုင်း ကိုးဝဲ. ကိဝါ။

NUTMEG TREE.

Within a dozen years, the culture of the nutmeg tree has been successfully commenced both at Mergui and Maulmain. There

are two or three large nurseries belonging to natives behind the hill at Maulmain, where the trees appear to thrive; and there is a plantation containing some thousands of trees at Mergui belonging to Baron des Granges, where the trees were beginning to bear several years ago; but the nutmegs can be imported from Penang cheaper than they can be sold at a remunerative price in these Provinces, so there is little prospect of the spice plantation increasing.

Dr. McClelland states that he found the nutmeg growing wild "in the forests between Pegu and Toungoo, on the banks of the Cadoojway stream;" which is "very remarkable, if true."

Myristica moschata.

ဇာဒိပ်ဖိုလ်။ ဇတိဖလံ။ *(Pali.)*

စါရံဖြာ့. စဉ်တံးဖိဉ်။

MACE.

Mace, which is the aril of the nutmeg, appears to have been originally regarded by the natives as its flower, for its Burman name signifies "nutmeg flower."

ဇာဒိပ်ဖိုလ်ပွင့်။

LIGN ALOES.

The fragrant substance called lign-aloes, or wood aloes, is offered for sale in all the bazars on the coast, and is the produce of a tree that grows on the Mergui Islands. It is imported into Mergui by the Selungs, who, as they profit from the trade, endeavor to keep all in ignorance of the tree from which they obtain it.

Gesenius says the Hebrew and Greek names are "derived from the Indian name of the tree, *agil*, Sanscrit *agaru* and *aguru*." Had he read Pali he would have been able to approach the word nearer than he has done, through the Sanscrit, for there besides *agarū*,* the Sanscrit word, we have *agalu* and *aggalu*,† which come sufficiently near the "Indian name agil," and the Greek aggollochon‡; but it would take a pretty thorough Etymologist to get aloee, the New Testament word, out of any of them. There is, however, another Sanscrit and Pali word with which Gesenius does not appear to have met, *lauha*.§ This is manifestly the parent of aloee, and by transposition, not uncommon in Hebrew, of the Hebrew name also.

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* အဂရူ။ †အဂလူ။ and အဂ္ဂလူ။

‡ This goes to show with other things, that the Greeks were connected in India with those that spoke Pali rather than Sanscrit.

§ လောဟ။

Although rendered aloes in the English version, no two plants are more dissimilar than this, and the common aloes.

Aquilaria Agallocha ?
Aloexylon Agallochum ?

အကျော်။ အကျိုး. အကျိုင်။

SANDAL WOOD.

Sandal wood imported from Hindustan is constantly for sale in the bazars, being a favorite cosmetic with Burmese maidens.

Santalum album.

စန္ဓကူး။ ကရမဲ။ စန္ဓန။ (*Pali.*)
ကရမဲ့. ကရမဲး။

WILD SANDAL WOOD.

An inferior kind of sandal wood is produced by a tree in the southern part of Mergui Province, and forms an article of commerce.

Santalum.

ကရမဲ။

COSMETIC BARK.

The fragrant bark of a tree which is indigenous in some parts of Burmah, is more universally used for a cosmetic than sandal wood. A single specimen has been shown me in Maulmain, which is a very ornamental fragrant flowering shrub of the citron tribe.

Murraya paniculata.

သနကား ၁နၸခၢ ၁နးခါ။

COSMETIC TUBERCLES.

An inferior cosmetic wood is seen in market, which is the tubercle of some plant. The Burmese appear, from their name, to regard them as produced by a species of erythrina, for they call them "erythrina thorns;" but I know the plant to be a creeper, and suspect that it is

Xanthoxylon budrunga, McClell.

ကသစ်ဆူး။

CRINUM BULBS.

A dried fragrant substance is seen among the native drugs, which is imported. No one seems able to tell what it is, but on tracing its Burman name through the Pali into the Sanscrit, I find Prof. Wilson defines it, with some doubt, as the bulb of a species of crinum.

Crinum.

ကန္တလူ။ ဖိပဲခိုင်။

MERGUI COSMETIC WOOD.

There is a fragrant cosmetic wood sold in bazar, which is said to come from Mergui, but I never saw the tree.

Xanthoxylaceæ ?

တောင်လန်ကြီး။

GALANGA KÆMPFERA.

The roots of this plant may be often seen attached to the necklaces of Karen females, for the sake of their perfume. They also put them with their clothes, and use them to a small extent medicinally.

Kæmpfera Galanga.

ခမုမ်း၊ ဆ၂၇. ဆူ။

KHUSKHUS-GRASS.

Both Karens and Burmese cultivate little bunches of a large grass belonging to the genus andropogon, for its fragrant roots.

Andropogon muricatus.

မန်းရင်း ကိးရ၂. ကိရုန်း ကိရဲ၊

SWEET BASIL.

Common sweet basil is not rare in gardens, but I have not met with it indigenous.

Ocimum Basilicum.

LEMON-GRASS.

Lemon-grass is cultivated by the natives all over the Provinces, and a decoction made from the leaves is deemed by them of much efficacy in cholic, and similar complaints.

Andropogon Schænanthus.

" *esculentum ?*

စပါလင်။ မစ်ကသွန်။ (*Tavoy*)

ဝဲပါ၊ ဟိန်ဝိုတပိ၊ ခိန်ဒုန်ဒါ။

WILD SARSAPARILLA.

There are two or more species of smilax in our jungles, one of which is used by the natives as medicine, to supply the place of a species of sarsaparilla, whose dried roots are sold in the bazars.

Smilax ovalifolia.

ကုကူး၊ လ၊ဲ၂. ဟိန်ကအး။

GINSENG.

The Chinese shops have the famous ginseng always on hand, but the plant is not cultivated.

Panax quinquefolia.

SPECIFIC FOR LEPROSY.

It has recently been ascertained that a small creeping plant with reniform dentate leaves, bearing its flowers in small umbels,

called the Asiatic hydrocotyle, by Roxburgh, has remarkable power over the leprosy. It has been used with great success in the hospitals on the other coast ; and since Dr. Morton directed attention to the plant, Dr. Brandis has found it growing on the highlands near the sources of the Yunezelon, between three and four thousand feet above the level of the sea.

Hydrocotyle asiatica.

LIQUORICE.

Dried liquorice is found among native drugs, but I have never seen the plant growing.

Glycyrrhiza glabra

သဿီာန္ဒယ်ရှိ။ ၁၂့စ္ပံၵအွံၵဒိၵ. ၁၄်စံဂ်ဝံဂ်ဒိကဘီ၊

WILD LIQUORICE.

There is an indigenous plant in the forests, the bark of whose roots has the taste of liquorice, but it does not belong to the same genus, though often supposed to be the same tree. I have not seen the flower, but the leaf and fruit would indicate it to be a species of acacia.

Acacia.

နွယ်ရှိ။ ၁၂့စ္ပံၵအွံၵဒိၵ. ၁၄်စံဂ်ဝံဂ်ဒိ။

HEART-SEED.

The heart-seed, which has an aperient root, is raised in great quantities by the natives, but more as a vegetable than a medicine.

Cardiospermum Halicacabum.

မယမဲ။ မၤလမဲ. မးမဲၢ်။

GARLIC.

Garlic bulbs are always for sale, but they are imported principally from Rangoon. The natives use them both for food and medicine.

Allium sativum.

ကျက်သွန်ဖူ။ ၁၂၇၁၂၁၂အွၤ, ပဝၢဝါ။

POLANISIA.

The leaves of a very common weed belonging to the genus polanisia, when bruised, are said to act as a sinapism.

Polanisia icosandra.

HELICTERES.

The dried, twisted fruit of a species of helicteres is seen among the native drugs in bazar, and is used by Burmese doctors.

Isora corylifolia.

Helicteres Isora.

သူငယချေ။

DESMODIUM.

The root of a species of desmodium is valued for its medicinal properties.

Desmodium triquetrum.

မုတ်ဆိုလှန်မ။ နှုမိုးဘီ၊ ကဝံ၎ကူ။
နိုဉ်မိုးဘိဉ်။ နိုစွုကိဉ်။

PARATROPIA.

The Karens make an infusion of the leaves of a species of paratropia, a plant of the ivy family, which they use for many interal diseases.

Paratropia digitata.
" *venulosa.*

ဘလူးလက်ဝါ။ ဆ၊ကူကူ၊. ကဟူးစု။

ENTADA.

This magnificent creeper is occasionally seen lending its light verdure to lofty forest trees, and throwing down immense pods, often more than a yard long. These pods are filled with numerous large dark brown seeds, from one to two inches in diameter.

Though not in Lindley, yet the seeds of this plant enter into the native Materia Medica as a febrifuge.

Entada Pusætha.

ကုမ်ညင်း။ ဘွုကဲ၊. မဲကဲ။

AGYNEIA.

The roots of this curious flowered plant are used medicinally by the Karens.

Agyneia coccinea.

ထမှင်ဆုပ်ကြီး။ ပနါဓ့ရှု၊. ဖိကွံ၊ ကဝံ၎ပျဉ်ဖးဒိဉ်။

LEEA.

A curious looking herbaceous plant, with a leaf larger than a cabbage leaf, is sometimes cultivated for the astringent properties of its roots. It is the large-leaved leea. The Burmans use it to stop the effusion of blood in wounds; but in Hindustan it is said to be a remedy for the Guinea-worm.

Leea macrophylla.

ကျာဘက်ကြီး။ နိုဒ်မှုံးမိုဒ်ဗဲမိုရု။

TABASHEER.

Some of our bamboos secrete a silicious substance called tabasheer, which has a place among native medicinal substances.

ဝါထဲကကျောက်။ ထံၢဝၢဒူၤ. ထံဒူး

COUNTRY MALLOW-LEAF.

The Burmese raise a species of abutilon, which is considered all over India a very good substitute for marsh-mallows.

Abutilon indicum.

သားမချုပ်။

SESBANIA.

A species of sesbania may be seen in culture for the sake of its leaves, which the Burmese use for poultices to promote suppuration. Owing to this characteristic they call the tree "water-chief."

Sesbania ægyptiaca.

ရေသူကြီး။

SESAMUM.

The sesamum plant is largely cultivated by the Karens, who bring the seeds to market and sell them to the Burmese, and they express the oil. The seeds are said to have the same property as linseed, and the oil to be a good substitute for olive oil. The natives use it in curries, and also burn it for lights.

Sesamum indicum.
" *muriaticum,* M'Clell.

နှန်း။ ဒွဲ့. နှံ့ဝိ။

OLIVE.

Wallich found a species of olive tree on the banks of the Salwen, but from which no oil is made, that he called

Olea attenuata.

KARUNG.

The tree which produces the karung oil by expressing the seeds, abounds from Tavoy to Toungoo. The oil is used, says Voight, by the natives, in eruptive diseases.

Pongamia glabra. Vent.
Galedupha indica. Lam.
သဝင်။ ကဝင်။ *(Tavoy.)*

McClelland says there are two trees in Pegu whose seeds yield this oil.

Galedupha arborea.
" *Tetrapetala.*

DUCK-WEED.

Every stagnate pool of water is covered with a curious floating plant which Roxburgh well compares to a lettuce half grown. A decoction of the plant Lindley says is by the "Hindustanees regarded as cooling and demulcent, and they prescribe it in cases of dysuria." The leaves are also made into a poultice for hemorroids. The plant is sometimes seen transferred to tubs of water near the public buildings, "to keep the water fresh," as I have been told; but it is well to know, that in Jamaica, the same plant in hot dry weather has been observed to "impregnate the water in the tanks with its particles to such a degree as to give rise to the bloody flux."

Pistia stratiotes. Linn.

ဓှော်။ ရွက်ကျပင်ဓှော်။

POTHOS.

Several species of a parasitical creeper, belonging to the genus Pothos, are seen creeping over the forest trees. One, the gigantic pothos, has enormous leaves two feet long by one and a half broad: and another is Roxburgh's officinel pothos, whose dried fruit enters into the Hindu Materia Medica.

Scindapsus officinalis.
Pothos "
" *gigantea.*
ငရိကြီး။

CYNOMORIUM.

Dr. Wallich says there is a species of this fungus-like genus, which is parasitical on the roots of trees in the Tenasserim Provinces, and valuable as a styptic; but I have not observed it.

Cynomorium.

TEA.

I have cultivated the tea-plant in my garden, where it flourished, and was a very ornamental shrub.

Thea.
လက်ပက်။

BURMESE TEA-TREE.

The Burmese make tea from the leaves of a tree, occasionally, which they call *let-pet-ben*, or tea-tree. Dr. M'Clelland says it is

Elæodendron orientale.
လက်ပတ်။

COFFEE.

Coffee not inferior to the best from Mocha, I have raised in my garden at Tavoy, but the plants do not flourish after the fourth or fifth year.

Coffea arabica.

SUGAR-CANE.

That Burmah is well adapted for the cultivation of sugar-cane, has been well tested by Mr. O' Riley, who made many tons of very excellent sugar from cane that was raised at Amherst. In Hindustan the mucilage of the musk-mallow, *Abelmoschus moschatus*, is used to clarify sugar, and it is one of our most common indigenous plants. Both the Burmese and Karens grow sugar-cane, which they chew for its juice, and from which they make cake-sugar. Considerable quantities are imported from the Shan States; and I have seen as fine looking sugar cane on the mountains of Toungoo as I have ever beheld on the flats of New Orleans.

Saccharum officinarum.
ကျွန်း ဆံရှိ၊ ထံဝိ၊ ဒါကျွန်း

JAGGRY.

The nipa is very extensively cultivated in the province of Tavoy. From incisions in the stem of the fruit, toddy is extracted, which has very much the flavour of mead, and this extract when boiled down becomes sugar. In Burmah, where the palmyra abounds, an extract from that tree is made to supply its place.

Some is made at Toungoo, but more is imported by the Shans from the north. The price in bazar varies from three to four annas per viss of ၃$\frac{2}{3}$ pounds.

ထကး။

CIRCINATE CYCAS.

The circinate cycas is abundant in many districts, and is not uncommon any where between Mergui and Toungoo. It produces a gum like gum tragacanth, and Rheede said the stem produced the true sago of commerce. This is considered a mistake, but the interior of the stem affords, it is said, an inferior kind of sago.

Cycas cyrcinalis.

မူတိုင်။ ကဆိုး. ကၢ်။

SAGO PALM.

Saguerus Rumphii, Mr. Parish writes, "is abundant in the Siamese States, and also in our own territory on the hills between Kockareet and the Thounyen." The same noble palm, with its leaves twenty feet long, I met on the mountains north-east of Toungoo, near the Red Karen table land. Lindley remarks: "It is said by Dr. Hamilton to produce another of the finest kinds of sago." Griffith only knew the tree as cultivated by the Malays. He writes: "This is one of the handsomest and most useful Malayan palms. It is very commonly cultivated in the interior, the lines of trees recalling to mind gothic arches. The parts chiefly used are the black fibres forming the rete, the juice, and the young albumen; the former are twisted into ropes or cordage, renowned for its power of resisting wet; the juice is either drunk as toddy or made into sugar, which appears to be in great demand. The young albumen preserved in syrup forms one of the well-known preserves of the Straits.

Saguerus Rumphii.
Arenga sacchirifera.

MERGUI SAGO.

Sago may be seen in every bazar in the Provinces, but it is not generally known what plant produces it, many having the erroneous impression that it is made from manihot. It is the produce of an indigenous plant abounding along the sea shore, the islands, and especially at Mergui—a species of tacca, the same plant that is common in the South Sea Islands, whose tu-

bers there supply to the inhabitants the place of bread. Considerable quantities of sago are made at Mergui, yet Lindley in his Medical Botany, makes no reference to tacca as yielding sago.

Tacca pinnatifida.
ပံခတတ်။တောက်တာ။ သာဂူ။ *common sago.*
မိုဃ်သီ။ *large sago.*

MERGUI ARROW ROOT.

A spurious kind of arrow root has long been made at Mergui from the same plant as that which yields the sago. But medical men have decided that it contains properties which render it unsuitable for the sick, and chemical analysis has developed that it contains only half the nutritious qualities of the genuine arrow root.

TRUE ARROW ROOT.

The true arrow root plant was introduced several years ago by Mr. O'Riley, and is beginning to be largely cultivated. The arrow root made is not inferior in quality to any imported; while it is sold for half the price, at a good profit. A gentleman at Tavoy has sold a considerable quantity for exportation this year, and has orders for more than a thousand pounds of the next crop.

Maranta arundinacea.
ပင်ပွား။ ပါပွာ. ပဉ်ပွာ်။

TAPIOCA TREE.

I am not aware that either tapioca, or cassava is manufactured in Burmah, but manihot, the plant which produces both, is frequently seen in culture. The natives boil the root, and eat it like a yam, though severe sickness is often induced by the use of it. The Karen name signifies "tree yam," and in Burmese it is called the "Penang yam," which shows whence it was imported. Malays have told me that much of the sago, and arrow root which comes from Penang and Singapore, is made from this plant, though the former is usually supposed to be prepared from the sago palm; and Mr. Ranney informs me that arrow root is made from it at the Mauritius. It is said that an acre of ground, planted with the cassava tree yields nourishment to more persons than six acres cultivated with wheat.

Janipha Manihot.
Jatropha "
ဗိလောပိနံမြောက်။ နဲ၂ဝ့ၟ. ခွဲဉ်ဝှဉ်။

EDIBLE MOSS.

This is a sea weed, abundant on the coast, and exceedingly valuable for its nutricious and medicinal properties for invalids. It was first brought to public notice by Dr. O'Shaughnessy, as "The edible moss of the Eastern Archipelago," who referred it to

the genus fucus. The fructifications, however, being in small tubercles, I should consider it a species of Agardh's genus, sphærococcus; but that genus having been broken up, it now constitutes a member of the genus plocaria. It is an allied species with the Ceylon moss, *P. lichenoides*, with a species found on the coast of Devonshire in England, *P. compressa*; with the Corsican moss of the Mediterranean, *P. Helminthochorton*; and with a species used in China as a substitute for glue and gum-arabic, *P. tenax*; but differs generically from the Irish or Carrageen moss, *Chondrus crispus*; and is not of the same natural family with the Iceland moss, *Cetraria islandica*, which is neither a moss nor a sea weed, but a lichen.

The Tenasserim moss is said to be superior to all others, as it is wholly free from the bitter principle which renders other fuci so objectionable. It contains a considerable proportion of starch, and was hence named by Dr. O'Shaughnessy the starch fucus, *F. amylaceous*; but his specific name has since been changed to candida, white, probably from a mistaken idea that the substance is naturally white, whereas it becomes so only by bleaching in the sun; its natural tint being a shade between olive and purple, such as the natives designate red.

According to Dr. O'Shaughnessy's analysis, it contains as follows:

Vegetable jelly,	54·5
True starch,	15·0
Wax, a trace,	0·5 ?
Ligneous fibre,	18·0
Gum,	4·0
Sulphate and muriate of soda,	6·5
Sulphate and phosphate of lime,	1·0
Iron, a trace,	0·4 ?
	100·0

On the best mode of preparing it for use he adds:

"In the first place, from the tendency of *pectin*, or vegetable jelly, to form insoluble compounds with saline and earthy bases, it is necessary to steep this fucus for a few hours in *cold rain water* as the first step in its preparation. This removes a large portion, if not the entire, of the sulphate of soda, leaving all the gelatine and starch. It should next be dried by the sun's rays, and *ground to a fine powder*; I say *ground*, for cutting or pounding, however diligently or minutely performed, still leaves the amylaceous globules so mechanically protected, and so closely involved in an external sheath of tough ligneous fibre, that scarcely a particle of the starch can be extracted by boiling, even though the decoction is prolonged for several hours. When *ground*, boiling for 25 minutes or half an hour dissolves all the starch and gelatine. The solution while hot should be passed

through muslin or calico, and thus the ligneous fibre is removed; lastly, the strained fluid should be boiled down till a drop placed on a cold surface gelatinizes sufficiently.

"With milk and sugar, and flavoured with lemon juice or sherry, this substance, when prepared as I direct, would afford the invalid a pleasant article of diet, especially at sea, where other jellies or their materials cannot be so easily preserved. As I am informed that this fucus is found abundantly on the eastern coast of Bengal, I entertain considerable hopes of its being hereafter found available also in several processes of art and in various manufactures."

Plocaria candida.
Fucus amylaceous.
ကျောက်ပွင့်။

PLANTS PERTAINING TO ECONOMICS.

There are numerous plants used for dyes, for tanning, for clothing, for cordage, for building, and for other economic purposes, which admit of being grouped together.

VARIOUS BLACK-DYE PLANTS.

The blossoms of the shoe-flower plant are used by the Chinese to dye leather black, the juice of the cashew-tree gives a black to linen, and the fruit of the melastoma affords a black dye.

SHAN BLACK DYE.

This celebrated vegetable dye is made from the fruit of a species of ebony, which is said to grow on the mountains that separate the Province of Tavoy from the Siamese territories. Isolated plants may be seen in the gardens of Tavoy, and Maulmain, but I have never seen one in flower, or fruit.

Diospyros mollis.
မပ်ကျား။—*ma-kleu.* (*Sgau.*)

CHEBULA.

The fruit of the chebula mixed with an iron clay is in common use to form a black dye, which is said to be very good. All the native ink is made from this fruit, but although black when used, in the course of a dozen years it sometimes fades so that the writing is scarcely legible. The tree is found throughout Burmah, but is not very abundant.

Terminalia Chebula.
ကရီး။ ကျရူးပစူး (*Tavoy.*) ဝှုကူး. ဝှုခိုဉ်။

PHYSIC-NUT.

The physic-nut tree is a shrub used extensively for hedges in Toungoo. Its juice dyes linen black; "The oil boiled with oxide

of iron," says Lindley "forms a varnish used by the Chinese for covering boxes." An oil is expressed from the seed which the Hindus use to burn in lamps; and Roxburgh says: "The leaves warmed and rubbed with castor oil, are by the natives applied to inflammations where suppuration is wished for. The seeds taken inwardly act with great violence."

Jatropha Curcas.

သတော်ကြက်ဆူ။

MARKING NUT.

This fruit produces an indelible ink, which is used for marking linen and for other purposes. The Egyptians have been credited with considerable chemical skill, because the marks of indelible ink have been found on the mummy clothes, but they were probably made from the marking nut.

The dried nuts are constantly for sale in the bazars, and Dr. M'Clelland reports the tree among the productions of Pegu.

Semecarpus anacardium.

ချေး။

OAK GALLS.

Oak galls can always be obtained of the native druggists, but I think they are all imported, although we have several species of oak indigenous in the country.

Quercus.

ပြည်တကာနီသီး။

RUELLIA.

The Burmese cultivate a low plant as a substitute for indigo which is the *room* of Assam, from which country it has probably been introduced. It forms a blue dye not inferior to that produced by the true indigo plant.

Ruellia indigofera.

ဓဲကြီး။ ယာလာမှုပ်. ယာလာဝှုဖြ. ဝညှင်ဝှင်ဖိ။

ASCLEPIAS BLUE DYE.

The Karens, and sometimes the Burmese, plant a creeper that is indigenous in some sections, and which makes quite a good indigo blue, though not equal to the ruellia dye.

Marsdenia tinctoria.

Asclepias "

ဓဲနွယ်၊ ဓဲဒီ၊ ယာလာဝံ့ဖျိ ဝညှင်ဝှင်စံဉ်။

INDIGO.

The true indigo plant is grown occasionally by both Karens and Burmese, but less extensively than either of the preceding.

Indigofera tinctoria.

ဓဲနယ်။ရှုနှုးဓဲ။ ဓဲဒိပ်. နိုးစိုါဒါ။

WILD INDIGO.

An indigenous shrub, a species of indigo, is sometimes used in forming a blue dye.

Indigo fera.

မဲရိုင်း။ မဲမံ့၊ နီးစီးမံ့၊

JAMBO MORDANT.

The bark of a species of eugenia is used as a mordant for blue and black dyes.

Eugenia Jambolana ?

သပြေထမ်ရှစ်။ မံ့၊ ဝမ့ပါရခါ။

VARIOUS RED-DYE PLANTS.

The rose-coloured fruit of the tamarind "yields a beautiful deep red-colour, approaching purple;" the wood of the *Adenanthera pavonia* dyes red, and the wood of the black varnish tree affords a red dye.

SAPAN WOOD.

In the valley of the Tenasserim, between the latitudes of Tavoy city and the mouth of the Tavoy river, the hills that border the valley on the eastern side abound in sapan wood, which is used extensively as a red dye. Considerable quantities are exported every year from Mergui, and that province is usually supposed to contain the tree, though it is really within the Province of Tavoy; but the facility of water communication from the interior to Mergui, makes that the only port to which the wood is conveyed. It is rather singular that this narrow locality is the only one in the Provinces, so far as I am aware, in which the tree is found. The tree has a much wider range, the Karens inform me, on the Meinam side of the mountains in Siam. More than five hundred thousand pounds have been exported from Mergui during some years between 1830 and 1840; but latterly the forests have not been so productive.

Dr. M'Clelland writes: "It is found in the immediate vicinity of Prome, growing in the small hills of that place. It is also seen near Thoungzai, in the northern part of the Rangoon district;" but Dr. Brandis says: "Not wild in Pegu."

Cæsalpinia Sappan.

တိနုညက်။

LOG-WOOD.

The log-wood tree is cultivated in a few gardens, and appears to flourish as well as an indigenous plant.

Hæmatoxylon campechianum.

ARNOTTO.

The arnotto tree, though an American plant, is propagated extensively by the Burmese, who prepare a red dye from its fruit.

Bixa Orellana.

သီတင်း၊ ပန်း၊ မကျီး၊ မဝ်ပစ်

ROTTLERA.

An indigenous shrub is not uncommon which the Burmese call wild arnotto, because "the red mealy powder which covers the capsules" dyes scarlet; and it is sold in the bazars. The root, too, Roxburgh says, dyes red.

Rottlera tinctoria, Willd.

တောသိတင်း

MORINDA.

The natives prepare their red dyes most usually from the roots of two or three species of morinda. The species most usually seen in cultivation is the citron leaved morinda, and was first described by Roxburgh from specimens furnished him from Pegu. In the Tenasserim Provinces the Burmese call it *nyau,* but in Martaban and Pegu *nie-pa hsæ.*

Morinda citrifolia. Roxb.

နိုဝဆးကြိုး ညောကြိုး

Other species are denominated by the Burmese

ချောက်ဆေး ကုန်ကောင်းဆေး ညောဒြိ

INDIAN MADDER.

Wallich found the plant, which produces Indian madder, on the Irrawaddy, of which Roxburgh says: "The roots, stems, and larger branches are used to dye red."

Rubia cordifolia. Linn.

MANGROVE MORDANT.

The bark of a small tree from the mangrove swamps is used by the Tavoy women in dying red, but I think as a mordant.

Kandelia Rheedii!

ကဆိုင်း ကျဆိုင် ကဝါး

GRISLEA.

M'Clelland says that *Grislea tomentosa* is "very common in the Prome district. It is not found in the Toungoo districts." Roxburgh says it is "a very beautiful shrub. The bright red, permanent calyx which retains its colour till the seeds are ripe, gives to this shrub a very gaudy appearance." The flowers dye red.

Grislea tomentosa. Willd.

VARIOUS YELLOW-DYE PLANTS.

The wood of the jack, the root of the pyschotria, the bark of the gamboge trees, the flowers of the buteas, the rind of the Bengal quince, and the leaves of the memecylon all produce bright yellow dyes.

SAFFLOWER.

The safflower is widely grown on the banks of the Irrawaddy, and may be occasionally seen on the banks of the Salwen. Its

flowers furnish the best yellow dye in the country, and mixed with other ingredients they are used to dye red, and to give a variety of tints.

Carthamus tinctorious.

ဆူး။

TURMERIC.

Besides using turmeric for both food and medicine, the Burmese and Karens dye with it a bright yellow, but it is not very permanent.

Curcuma longa.

သန္ဒင်။ ယၢတၢ. ဝယီ။

VARIOUS ORANGE-DYE PLANTS.

The flowers of the buteas with an alkali, the corolla tubes of the tree of mourning, and the leaves of the henna tree, yield beautiful orange dyes. The latter are used in India to dye skins a " reddish yellow."

MERGUI RED-WOOD.

Mergui red wood is a valuable dye-wood for both black and red, but more especially for orange. From an article in the Journal of the Asiatic Society, it appears that " a number of experiments, made at the request of Mr. G. Swinton, by Mr. Thomas Speir, upon the Mergui dye-wood, prove that it affords, with the mordants commonly used by dyers, colours equally bright, and of a more permanent nature than those of most other dye-woods. The colours imparted to silk with different mordants were as follows':

1.—*Muriate of tin.* Three shades of orange, varying with the temperature of the bath, and the time of immersion.

2.—*Acetate of alumina.* Two shades of flame colour.

3.—*Acetate of iron.* Two shades of drab.

4.—*Ditto, with a weak decoction of galls.* A fine black, two shades.

5.—Mixed with *manjit*, a variety of red and pinks are obtained, but not perhaps equal in intensity to those of the *manjit* alone. The chief attraction of this wood as a dye, is the orange colour which it yields with the aid of muriate of tin and acetate of alumina, of a great variety of shades.

These results shew that the Mergui wood is deserving of further attention, and that it may become eventually an important article of commerce with our possessions on the Tenasserim coast."

It is not quite certain what tree produces the Mergui red-wood. The flowers which accompanied the specimens of the wood sent to Calcutta, belonged to the Burman black varnish tree, yet Mr. Maingay who sent them, thought it a different

tree. I imagine there was some mistake, and that the Mergui red-wood is identical with the Tavoy red-wood.

Syndesmis Tavoyana.

ချေး။

GREEN-DYE PLANTS.

Turmeric, and the leaves of the soap-acacia afford a beautiful green dye.

Acacia rugata.

ကင်ပွမ်။ ဖန့်ဆဲ့. ဖိဆံ့ဂ်။

BLACK VARNISH TREE.

The celebrated Burmese black varnish tree is cultivated in the Tenasserim provinces, but I never saw it growing there spontaneously.

In Toungoo however it is so abundant in the forests that in some of the christian villages, the posts of the chapels are exclusively of this tree, and it makes very fine timber, the *Lignum vitae* of Pegu. "The varnish," says Major Berdmore, mixed with the ashes of bones is used as a paste for sticking glass on boxes and images. Native doctors also use it as a vermifuge for children. The dose being a quarter of a tickal varnish to half a tickal of jaggery.

Melanorrhœa usitatissima.

သစ်စေ။ ကွေ့. ဦး

WILD BLACK VARNISH TREE.

There are two indigenous species of the same genus that produces the common black varnish; but I am not aware that the exudation which they yield is applied to any economical purpose.

Melanorrhœe glabra.
" *visitata.*

သစ်စေရိုင်။ ဦးဆိ၊

HOLIGARNA.

There is another black varnish tree in the forests, belonging to a different genus; and on the other coast, where the tree grows, its exudation is used by the natives to varnish shields, and for other purposes.

Holigarna longifolia.

ရှစ်ချေး။ ခွဲ့ဝိုင်ပူဉ်။

YELLOW VARNISH TREE.

A species of garcinia that has often been mistaken for the tree which produces gamboge, is very abundant in the Tenasserim Provinces, and the gum-resin which it yields when dissolved in spir-

its of turpentine, affords a beautiful permanent yellow varnish for metallic surfaces.

Garcinia Cambogia.

တောင်တလဲ။ ပကျယ်ရှင်။ *(Tavoy.)*

ကွၤယီၤခီး.--ကွၥ. တိးတလ့။

PINEY VARNISH TREE.

Trees which yield this beautiful varnish so extensively used in Hindustan, are very common about Maulmain, yet I am not aware that the varnish is collected.

Vateria Roxburghiana.

လက်တောက်။ လက်တုပ်။

TANNIN TREES.

The Provinces are rich in materials for tanning. The bark of the Careya, the willow, and of half a dozen different species of mangrove, the fruit of the sea-cocoanut, and the peel of a species of ebony, all abound in tannic acid.

Rhizophora conjugata.

ဖြု။ ခွန်ဖဒထီ။

Rhizophora gymnorhiza.

Bruguiera Rheedii.

" *eriopetala.*

စောင်။

Carallia lucida.

Kandelia Rheedii.

Ceriops Roxburghianus.

ကဘိုင်။ ကျဘိုင်။ ကပၢ။

COCOANUT.

The Burmese express large quantities of cocoanut oil, but use it principally to burn.

Cocos nucifera.

အုမ်။ ဖျိုး. စီး။

CERBERA.

In many places on the banks of tide-water streams, the most remarkable tree in sight is a species of cerbera, whose fruit is used very extensively by the Burmese to make an oil which they burn in their lamps, and use to anoint their heads; a use not mentioned in the books. Lindley describes it as emetic and poisonous, of which there can be no doubt. "The milky sap," he continues, "is employed as a purgative. The leaves and bark are so similar to senna in their action that they are substituted for it in Java." If the statement be correct, the Tenaserim Provinces might supply all India with senna; for the tree abounds from the mangrove swamps on the sea shore, to the boundaries

of tide-water on almost every stream, and any quantity of leaves may be obtained for the trouble of gathering.

Cerbera Manghas.

ကလွာ။ ခူးဒိ၂. ခွန်ဒိ။

WOOD OIL TREE.

Dr. Helfer says that the oil of wood "laid upon paintings covers them with a transparent fine coating, not liable to turn yellow, and dries quickly."

A few years ago Mr. Laidlay, the Secretary of the Asiatic Society, discovered that the oil of wood will dissolve caoutchouc. "The process adopted was simply to cut the caoutchouc into small pieces, and then drop a sufficiency into a bottle of the oil. In the course of a few hours the caoutchouc swells, and must then be frequently stirred to facilitate the process. If heat be applied, complete solution is speedily effected, but several days are required at the ordinary temperature of the atmosphere. The solution thus prepared may be spread on cloth, which is thereby rendered water-proof." Wood oil has been found to answer as a good substitute for fish oil in currying leather; and it is used for house varnish.

Large quantities of this oil are used in Burmah in the manufacture of torches, which emit a brilliant and durable light. A half dozen of these torches planted on an eminence make a splendid cresset, illuminating far over the plains.

Dipterocarpus lævis.

" *turbinatus.*

ကညည်။ စုံဒိ၂. စီဒိ။

OIL OF BEN TREE.

The tree which yields the celebrated oil of ben is very abundant, though I am not aware that any oil is pressed from the seeds in this country. But in the West Indies the oil of this tree is used for salad oil, and "because it does not congeal or turn rancid, employed by watchmakers, and for retaining the aroma of delicate flowers."

Moringa pterygosperma.

Hyperanthera Moringa.

ဒသလွံ။ ထိုးခူး. ပထိးခွန်။

ILLIEPIE OIL TREE.

In the southern part of the Provinces a large timber tree is indigenous, from the seeds of which the natives express an oil which they eat with their food, and use for other purposes. It is a species of bassia, and does not differ sufficiently from the tree which produces the illiepie oil of Hindustan to constitute a new species.

Bassia longifolia.

ကမ်စော်။ ကုံစိုး. ကိုန်စိန်။

DAMMER.

Dammer in India supplies the place of pitch and rosin, and in these Provinces is the product of three different genera belonging to the wood oil tree family—the shorea, the hopea, and the dipterocarpus.

SOAP-NUT.

The soap-nut tree has been introduced, and appears to flourish.

Sapindus emarginetus.

SOAP ACACIA.

The dry pods of a species of acacia are sold in the bazars, which are used as a substitute for soap in cleansing the hair.

Acacia rugata.

ကင်ပွမ်။ ဖျာ့ဆဲ့. ဖိဆံ့ဂ်။

FLAX.

The flax-plant is not, so far as I know, cultivated in Burmah, but the Burmese are acquainted with linen from their books in which it is frequently mentioned.

The lake or tank near king Wathandria's hermitage, is described as being covered with water lilies, that appear like garments made of thread of flax bark; and linen garments are mentioned among those which priests are permitted to wear.

Linum usitatissimum.

ခေါမ။ *Kshauma (Sanscrit.)* ခီ၇မ၂. ခီမး။

NATIVE COTTON.

The Karens usually grow cotton enough to make their own fabrics, and on the Salwen and Tenasserim it is sometimes raised in considerable quantities; but its market price is little more than a fourth of the best American cotton; yet with improved modes of culture, and frequent changes of seed, its value would undoubtedly be greatly increased.

Gossypium herbaceum.

ဝါ။ ဘဲ၊. ဘဲ။

PERNAMBUCO COTTON.

Mr. Blundell introduced the plant which produces the Pernambuco, Peruvian, Bahia, or South Sea Island cotton; and Major Macfarquhar raised such a fine article at Tavoy from it, that the Committee of the Agricultural and Horticultural Society of Calcutta were unwilling to believe it the production of that species. They reported: "The sample sent by Major Macfarquhar appears to be of a quality resembling the *Sea Island*, but finer and more silky, and the fibre not so strong, its value is not so easy to determine, but the Committee are of opinion that it would sell for a high price. The Pernambuco cotton, which it is believed, is the same as the *South* Sea Island cotton, is an inferior staple to that of the N. American Sea Island, and they have a sample of cotton

submitted which in point of *fineness* surpasses the genuine Sea Island cotton of N. America.

"This improvement on the general staple of Pernambuco cotton might be reconciled had it been produced *at a distance from the Sea*, since it has been ascertained, that this description of cotton deteriorates by proximity to the sea; whence your committee are disposed to think that Major Macfarquhar has been led into errour in calling it *South Sea* Island instead of Sea Island."

Admitting that Major Macfarquhar was in errour, which it is believed he was not, the report proves that an article "finer and more silky," than the best American cotton has been raised in these Provinces. The principal difficulty to the introduction of this species into general cultivation was, as Mr. Blundell told me, that the trees did not produce abundantly.

Gossypium acuminatum.

ဝါကုလာ။ ဘဲဖိုလေ. ဘဲကိုလေ။

SEA ISLAND COTTON.

Sea Island cotton has been raised in the Tenasserim Provinces by amateur cultivators, but I have never seen any report on the article obtained. "Bourbon cotton of Indian growth," says Wight, "has sold in the London markets for the highest prices going;" and, as the Bourbon plant is the original Sea Island acclimatized to the East, the cultivator would have a stronger probability of success by obtaining his seed from Bourbon, than from America. Much attention should also be given to the selection of a proper soil. Analysis has shown that all the lands on which cotton is grown in India, differ widely in their constituent parts from the best cotton lands of America. The subject is still in its infancy, more extensive analysis being required; "but it seems *at present*," observes Mr. Piddington, "that the abundance and fineness of good cottons depend on the quantity of carbon in the soil, *and the solubility of that carbon.* If therefore, you can obtain a soil approaching the American soils, that is, containing peaty matter, lignite, and colouring cold water, this will no doubt be the best; because it contains carbon, and probably hydrogen combined with it, suitable for the food of the plant. And the next best soil is one containing carbonate of lime.

Gossypium barbadense.

Var. (a) Barbadoes, or Bourbon cotton.

" *(b) Sea Island, or long stapled cotton.*

" *(c) Upland Georgia, or short stapled cotton.*

RED KAREN COTTON.

By far the finest looking native cotton I have seen in India, is that cultivated by the Red Karens. The plants grow more than twice the height of those seen in Toungoo close by. It may be attributed to two causes. Much less rain falls on the table land

inhabited by the Red Karens, than in Toungoo; and it is entirely a limestone soil, which Mr. Piddington said was the "next best" soil for the plant. Were I about to establish a cotton plantation, I should certainly commence in the Red Karen country.

HEMP.

Near the Burmese villages large fields of a yellow-flowered plant, as tall as wheat, may be often seen, which is called hemp. In Hindustan it is called Bengal flax. Although the stems of the plant produce a substance analagous to flax or hemp, it bears no relation to those plants, but is a species of crotalaria, a leguminous plant. The true hemp, though occasionally grown to a small extent, is never fabricated into cloth.

Crotalaria juncea.

ပံး။ ပိုက်ဆံ။ ပဒီ၊

POUK HEMP.

Another leguminous plant is often seen growing wild, half under water, which the Burmese call *pouk*, and *nya*, whose bark is said to afford a coarse hemp, and an allied, if not the same species, is cultivated in Bengal.

Æschynomena paludosa, M'Clell.

ပေါက်။ ညာ၊

NETTLE HEMP.

In the neighborhood of Ava a substitute for hemp is diffused, belonging to the genus urtica, which was cultivated for several years by Major Macfarquhar at Tavoy, who endeavored to induce the natives to foster it. It is said to produce a finer fibre than hemp, and has been introduced into Egypt, where it flourishes, from France. It might be cultivated in Pegu to advantage, for the plant does well in both Tavoy and Ava. It is a native of Sumatra.

Urtica nivea, Lin.
" *tenacissima,* Roxb.

ဂွမ်း

SIDA HEMP.

The most troublesome weed in Tavoy produces a very fine hemp or flax. There are two species, but they are not usually distinguished.

Sida acuta.

ဗျင်ဒန်ငလင်၊ ဝန်စဲဒိ။

Sida stipulata.

ဗျင်ဒန်ငလင်အမ၊ ဝန်စဲဒိ။

URENA HEMP.

Another weed which abounds all over the coast serves in the

place of hemp in Amherst Province, Calcutta, and appears to afford a valuable article.

Urena lobata.

ကပ်စေးနဲ။ ဝက်ချေပနဲ။ ရွှေဘံတိုင်း။ ဘီဘာဝါ။

CORDAGE PLANTS.

As in other parts of India, cordage is made of coir, the outside shell of the cocoanut, but ropes are more frequently made from the bark of three different trees belonging to the genera hibiscus, paritium, and sterculia.

Paritium macrophyllum.
Hibiscus macrophyllus.

ဘက်မွှေရှော်။ ဒီ၂ထိ၂. ဆိုန်တိ၊

Paritium tiliaceum.

လျှည်ညာရှော်။ သင်ပန်။ ဒီ၂ထံ၇. ဆိုန်ထံ။

Sterculia ramosa.
" *ornata ?*

ရှော်နီ။ ဆိုန်ဖိ။

RED COTTON TREE.

The red cotton tree is one of our most abundant forest trees, and the silky down that envelopes the seed is used to stuff mattresses and pillows; and it has occasionally been made into cloth. There appear to be two species, one was figured by Wallich among his rare plants, as *Bombax insigne*, since changed to *salmatia insigne*. The other looks to me like *S. malabarica*, the *Bombax heptarphyllum* of Roxburgh; but McClelland refers it to *B. heterophylla*, of which I have no description.

လက်ပံ။ ကၽ. ကြီး။
လဲ။ စိ။ ကဒံ၊။

WHITE COTTON TREE.

The white cotton tree does not grow spontaneously, but is often planted, and the floss, which it yields abundantly, is preferred to the product of the red cotton tree.

Gossampinus Rumphii.
Eriodendron anfractuosum.
Bombax pentandrum.

သဘော်လဲ။ ရှင်။ (*Tavoy.*) ဘဲစိ။

YELLOW COTTON TREE.

Dr. McClelland found the yellow flowered cotton tree furnishing the Burmese with down for their pillows.

Cochlospermum gossypium.

PAPYRUS.

Many of the mats sold in bazar are imported from Calcutta,

where they are made of a species of papyrus that grows in Bengal.

Papyrus Pangorei.
Cyperus tegetum.
ဝက်လာ။ ဗဲ၂. ဆဲ။

MARANTA.

Some of our mats are made from the split stems of a species of maranta.

Maranta dichotoma.
Thalia cannæformis.
တင်။ သင်ထိမ်။ (*Taoy.*) နၢ်ၤဘိၤ. နိၤဘိ။

LOWLAND SCREW-PINE.

The large coarse mats in universal use are made from the leaf of a species of screw-pine, that grows abundantly on the lowlands near tide-waters.

Pandanus furcatus ?
သဘော့။ ဆၢလွၣ. နဲးထံ။

HIGHLAND SCREW-PINE.

Smaller and finer mats in common use are fabricated from the leaves of another species of screw-pine, that grows on the highlands above tide-waters.

Pandanus.

SAIL-LEAF.

On many of the Burmese boats, sails are seen made of large narrow leaves, sewed together. They are the leaves of a species of screw-pine that has a trunk like a palm, which is very abundant and usually grows near the sea. The fruit is used by the Karens to hackle their thread.

Pandanus.
ဆပ်သွာ။ လူၢခွံၢ. နဲးခွံ။

BENGAL PAPER PLANT.

There is a pretty yellow flowered weed throughout the country, though not very abundant, *Corcorus olitorius*, from which the Bengalees make their coarse paper, and their gunny bags, which form one of their articles of exportation. Another species of the same genus is a common weed, which is cultivated in both China and Bengal for its fibre. There are other species possessing similar properties.

Corcorus capsularis, Linn.
" *olitorius,* "

TENASSERIM PAPER PLANT.

The Tavoyers make a coarse paper from the bark of a large creeper that is found in the forests. The paper is as thick as paste board, and the surface is blackened and written with a

steatite pencil. I have never seen the plant in flower, but it is probably a species of daphne.

Daphne.

ဆေလေ။ ၁မံၢ့ကူ. ၁မံကျဲ။

CHINESE PAPER TREE.

Dr. Brandis discovered in the forest south-east of Toungoo, the tree from which the Chinese are said to make their paper. It belongs to the mulbery family, and the bark is used by the Burmese to make their coarse paper referred to in the preceding paragraph, which when formed into their peculiar books opening backwards and forwards, they call *pa-ra-baike**.

Broussonetia papyrifera.

မလှိုင်။

PALM-LEAF.

All the Burman books are made of the leaf of a species of corypha, but the orders that are issued from the Burmese courts are written on strips of palmyra palm-leaf.

ABRUS.

The jewellers use the seed of a species of abrus, red with a black eye, or black with a white eye, for small weights. It is a popular belief that they almost "uniformly weigh exactly one grain, troy;" but I have weighed many and found them to vary from one to two grains. The Burmese use them within a fraction for two grain weights. One hundred and twenty, by one mode of reckoning, and one hundred and twenty eight by another, make one tickal, which weighs according to Captain Low 253·75 grains troy.

Abrus precatorius.

ရွေးငယ်။ချင်ရွေး။ မောင်မငယ်။ (*Tavoy.*)

လွဝီး. ၁လွဉ်ဂီး။

ADENANTHERA.

Another seed which the books represent as usually weighing four grains, is in common use by the Burmese, as equivalent to two of the preceding, which is about four grains. The seeds, however, have to be selected for the purpose; many of them not weighing more than two, or three grains each.

Adenanthera pavonina.

ရွေးကြီး။ မောင်မကြီး။ (*Tavoy.*)

လွဝီးဖၣဒြ. ၁လွဉ်ဂီးဖးဒိဉ်။

BEAD PLANTS.

The Karens in the southern provinces cultivate one or two species of Job's tears for the seed. The Pwos plant a species

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*ပုရပိုက်။

with round seeds which are used to ornament the borders of their tunics, but they are never seen on a woman's gown. The Sgaus on the contrary, cultivate a species bearing an oval seed, and use them merely for embroidering female dresses. In Amherst Province, the Pwos seldom appear in their native costume, and many deny that their tribe ever had any other than that which they now wear, which is Burmese.

Coix.

ကလိ။ ဖိ။ ဘာဉ်။

CAOUTCHOUC.

Within a dozen years the true caoutchouc tree of Assam has been introduced into the Tenasserim Provinces, and appears to grow as well as an indigenous plant.

Ficus elastica.

TENASSERIM CAOUTCHOUC.

An indigenous creeper yields caoutchouc not at all inferior to that which is obtained from the elastic fig tree. The Agricultural and Horticultural Society, in reporting on a specimen sent them by Major Macfarquhar of Tavoy, observed: "With care in preparing, it would be equal to the best South American." I have never seen the plant in flower, but to judge from the fruit, it belongs to the dogbane tribe, and echites group, for its seeds are comose above.

Echites.

ကျွက်ပေါင်။ ရှင်စောင်။ (*Tavoy.*)

ဖွ၄. ၁ဖဲ။

RANGOON CAUTCHOUC.

It was stated in the "Friend of India," a few months ago, that Capt. Power had forwarded specimens of Indian rubber from Rangoon; "The exudation of a plant, supposed to be the *Urceola elastica.*" In the absence of any description of the plant, we may suppose it identical with the one in the Tenasserim Provinces.

Mr. Parish writes me: "I think you are right, and I believe the plant to be *Echites macrophylla*, Wight. It is a splendid creeper, and yields apparently excellent caoutchouc. I find it on Beluguen."

GUNPOWDER.

M'Clelland says that the charcoal used in making gun-powder, is made from the wood of two species of *Erythrina*, or coral tree. It is not generally known that the tribes in the north-eastern districts of Toungoo make a very tolerable gun-powder for their match-locks without sulphur, which is difficult for them to obtain. The juice of the orange, lime and some other fruits, is used in its composition, which, it is said, increases its inflamability.

THATCH LEAF.

At Mergui and Tavoy the nipa is cultivated for its leaves, which are used in the Tenasserim Provinces for thatch. In some sections of the country the Karens thatch their houses with large palmated leaves of a tall wild palm, probably a species of livistona; sometimes the leaves of a species of ratan are used; but the Burmese and Europeans almost universally thatch their houses in the Tenasserim Provinces with the leaves of the nipa.

Nipa fruticans.

ဒနီ။ ကနံ၄. ကနံ၃။

THATCH GRASS.

In the interior the houses are covered with the tall grasses so abundant throughout the country. Two different species of grass are used for this purpose, both of which were formerly referred to the genus which produces sugar cane.

The sugar grass which flowers two or three feet high, has been removed since Roxburgh wrote, into the genus imperata. This is one of the grasses used for thatch, and is often mistaken for *Saccharum spontaneum*, which is the other.

Imperata cylindrica.

Saccharum cylindricum.

သက်ကယ်ညှင်။ ယံ၇ဖိ၇. ကဟံဖိ။

Saccharum spontaneum.

သက်ကယ်ကြီး။ ယံ၇နု၃. ကဟံနိုင်။

CANE.

Cane or ratan is used extensively by the natives instead of cordage. The stays of the masts in native boats are usually made of ratans, and they are split up into strings for innumerable purposes to which cord and twine are usually applied. All that gives stability to bamboo houses is the ratan which ties them together. There are numerous species indigenous in the forest, and the Karens have different names for seventeen species or varieties.

Calamus.

ကြိန်။ ဝ့၃. ဝ့၀်။

BAMBOO.

The bamboo is one of the most useful products of the country. Houses with all their furniture, are sometimes made of them. A fire is made by rubbing two bits of bamboo together; bellows to blow the fire are made of the same material. The bamboo seeds are eaten in times of scarcity instead of rice; and the young shoots serve for vegetables. The rice is cooked in a joint of a bamboo; the cup, spoon, and water bucket are all of bamboo; and the leaves serve for plates and dishes and thatch.

It is of the last importance in applying bamboos to any economical purpose, to see that they are cut in the proper season of

the year. If cut just before the rains, they will be nearly eaten up by weevils before the rains close; but if felled at the end of the rains, they will often remain strong, and without a worm, for six or seven years.

Dr. Thomson, in charge of the Botanical Garden, Calcutta, expressed to me his doubts of there being more than one species; while Dr. Brandis is of opinion that we have more than twenty well marked species in Burmah. According to the *Indian Field*, "The Burmah bamboo, *Bambusa gigantea*, is considered the prince of bamboos. It attains the height of 100 feet, each joint ranging from 20 to 24 inches in length, and as much as 36 inches in circumference. It has been known to grow 18 inches in 24 hours."

In contrast with this we have the Chinese dwarf bamboo introduced from Penang, which makes a pretty hedge, and when cut annually, looks like an Englsh quick-set hedge.

Bambusa spinosa, (*thorny bamboo.*)

ဝါးငချပ်။ စချပ်။ ဝၢဆူၢ. ဝဉ်ဆူဉ်။

Bambusa gigantea, (*gigantic bamboo.*)

ဝါးဖိုး။ ဝၢကျၢ်ၢ. ဝဉ်ချုဉ်။ ဝဉ်ကျုဉ်။

Bamousa nana, (*Penang, or China bamboo.*)

ဖိလောပိနံဝါး။ ဝၢကဘၢ. ဝဉ်ကဘိ။

TIMBER TREES.

The yellow wood of the jack affords beautiful timber for furniture, and in some parts of India it is highly valued. The heart of old tamarind trees furishes a hard, dark-colored wood, resembling ebony. Roxburgh says the wood is "durable and beautifully veined." *Cassia florida* has wood "not inferior to ebony." *Pongamia glabra*, and *Wrightia coccinea* have light fine wood, The Ceylonese iron wood tree, *Adenanthera pavonina. Vachellia Farnesiana, Acacia Catechu*, and the jujube tree furnish hard, tough wood. *Cassia fistula, Cassia nodosa*, the chesnut tree, *Sandoricum indicum, Nauclea Cadamba*, and one or two species of eugenia afford good timber.

These are among more than a hundred trees in the country that furnish valuable woods, of which the following selection embraces the most useful.

TEAK.

Teak is the staple timber of Burmah and from its abundance, and its valuable property of being impervious to the white ants, it is used in the cities almost exclusively both for building pur-

poses, and for furniture. In 1848 eighteen thousand tons of this timber were exported from Maulmain, and Mr. O'Riley estimated that more than three thousand tons were used for home consumption; the total value of the whole falling little short of a million of rupees.

Tectona grandis.

ကျွန်း။ ပယီ၂. ပဟိုဝ်။

HAMILTON TEAK.

This is an inferior species of teak that grows on the banks of the Irrawaddy; and from native descriptions, I imagine it is found in the province of Yay.

Tectona Hamiltonia.

" *ternifolia.*

တသဟတ်။ တဟတ်။

GMELINA.

"Large, remarkably strong tough timber," says Dr. McClelland, is produced by *G. arborea;* a tree nearly allied to the teak and which the Burmese call *kywon-pho,* a male teak.

Gmelina arborea.

ကျွန်းဖို၊

CHASTE TREE.

This is a species of vitex very common at Maulmain, related to the teak, which produces a valuable small timber. Roxburgh says:" Wood when old, chocolate coloured, very hard, and durable." The Burmese use it to make wooden bells.

Vitex arborea.

ထောက်ရှာ။

CLOG-WOOD.

There is a tree in the forests which furnishes a light white wood, of which the Karens in some districts make canoes, and the Burmese clogs. Mr. Parish writes: "I have lately seen an abundance of *Yamamee* in flower. I take it to be a species of

Gmelina.

ယမနေ။ မၢ့. ကမၢ။

WOOD-OIL TREE TRIBE.

This family produces several valuable timber trees in the country, and nearly all the sawn timber used by the Burmese which is not teak, is the produce of this family.

HOPEA.*

The hopea is considered the most valuable indigenous timber tree in the southern provinces; and at Tavoy and Mergui it is sawn up for building purposes. The best canoes are made of hopea, and it is used extensively in native boat building. Wight had two species from Mergui, one of which is

Hopea odorata.

သင်္ကန်း။ ဓိုဒ္ဓ. ဆူးကွဲ။ဓိုးကွဲ။

VATERIA.

A species of vateria is a common timber tree in the Provinces of Tavoy and Mergui. The timber is whiter than hopea, and equally good. Indeed, it is often called white thengan, or white hopea, the woods being only distinguished in commerce by their colour. Wallich in his list of Indian woods mentions *Hopea floribunda* as known at Tavoy by the Burmese name of *tantheetya*. This tree is called at Tavoy *pantheetya*, but it is certainly not a species of hopea. Its flowers, in white fragrant panicles, are often seen in the Tavoy bazar, and are very unlike the yellow second flowers of the hopea. I think it a species nearly allied to Wight, *V. Roxburgii*. "Among a collection of plants from Mergui," wrote Dr. Wight, "for which I am indebted to my friend Mr. Griffith, I observed specimens of some new species of this order [*Dipterocarpeæ*,] but which I do not consider myself at liberty to name or describe." This was probably one of the number.

Dr. Brandis met with a tree which the Burmese called *theetya*, that he referred to the *Dipterocarpeæ*, and doubtfully to the genus *Hopea*, not having seen the flower. It is probably the same tree with the name abbreviated; though I have always found *theetya* in the Tenasserim Provinces to denote a species of gordonia; a tree with an unmistakeably different flower.

Vaneria.

ပန်းသစ်ထာ။ ပုံဒုံးထေး. ဟိုဒ္ဓထိ။ ဒွယ်ဖိ။

WOOD OIL TREE.

The common wood oil tree produces a very useful timber, which is sawn into boards at Tavoy and Mergui, and used in house building. Where not exposed to the wet, they answer as well as teak, and are sold at half the price; but they are not impervious to white ants. The best charcoal is made from this tree and the next. The Burmese distinguish two species, *nie* and *phyu*, or red and white. The most common species from which the torches are made is called red in the Tenasserim Provinces, and Martaban; but Dr. Brandis has always head it called white in Pegu.

Dipterocarpus lævis, Buch.
" *turbinatus,* Roxb.

ကညွတ်။ စုံဒ. ဓိဒ်။

* In America often eroneously spelled hopia.

LARGE FLOWERED DIPTEROCARPUS.

This is a tree of the wood oil tree tribe, remarkably characteristic of a sandy soil. It abounds on the sandy plains near the sea shore at Mongmagon, and is equally common on a similar soil in the interior. It produces a valuable timber which is sawn and sold extensively in Toungoo. The Burmese call it အင်၊ *en*, which Wallich wrote *ain*, and referred to *D. grandiflora*. McClelland spells the name *aing*, and says it is *D. alatus*. Of the two Wallich is the most trust worthy.

Dipterocarpus grandiflora.

အင်။ စုတတၢအု. စိလိုတြၢ။

SHOREA ROBUSTA.

The Burmese books say that Gaudama died in a grove of Engyen trees, and the Pali name of the tree is *thala*, or *sala*, the Sanscrit *Sal*, the name of the *Shorea robusta*. Much of the petrified wood found on the Irrawaddy, the natives say belongs to this tree, and the Burman books state that Gaudama was born under one of them; though others say he was born under the *Jonesia*.

"*Shorea robusta* is probably the best timber tree in India," according to Capt. Munro; and "every species of the natural family that produces it, affords valuable timber." The tree though not very abundant is found in both the Tenasserim Provinces and Pegu, but the inflorescence differs from Roxburgh's description of *Shorea robusta*; though perhaps not sufficiently to constitute it a new species.

Vatica robusta.

Shorea "

အင်ခြင်း။ စိဝဲ၊

LARD SHOREA.

On the mountains in the interior is a species of shorea which produces an oil of the consistence of lard, and has been hence named by the Karens "the hog's lard tree." The books say that the shoreas produce resin, and dipterocarpus oil, but the fine long scarious wings of the dried calyx afford incontrovertible evidence that it is a species of shorea.

Vatica, vel Shorea

ကညည်ပြီ။ စုထိၢဒိၢ. စိထိးဒိ။

DOUBTFUL SHOREA.

The largest tree in the country of the wood oil tree family, yields no oil, and is probably a species of shorea; but I have never seen it either in flower or fruit. It is principally used for making large boats, but its places of growth are usually of difficult access by water, and it is not in very general use. Mr. O'Riley says: "It is well adapted for spars for vessels."

Shorea ?

ကောင်းမှု။ ဗိၢ. စိဝါ။

LEGUMINOUS TREES.

Several valuable genera of timber trees in the country, belong to the leguminous tribe.

ACACIA.

The genus acia which is famous for producing the gum arabic tree, is remarkable for all the species affording hard valuable wood, though not always large. Several tall timber trees in Burmah belong to this genus.

Sirissa acacia is a large tree, and its wood is "dark colored and very hard." The fragrant acacia is said to yield "a hard, strong timber." The tall acacia, says M'Clelland, affords "large timber."

Acacia sirissa,
" *odoratissima.*
" *elata.*

စဝ်။ ဆွေ။ ဝှေ။

The *kuk-ko* acacia is a very large tree, used for making canoes, and is a tree of which, according to Burmese geography, there is an immense specimen growing on the great Eastern island. The wood is used, says Major Berdmore, "for making cart wheels, and oil presses." The timber is so highly valued by the Burmese, that under their government, Dr. Brandis informs me, a higher sum was required for permission to fell it, than for teak or any other tree.

Acacia.

ကုဏ္ဍိုး၊ ၁၁၂၄ဆွေ။ ဆွေ။

BUNG MAY-RA.

This is a tree of which Major Berdmore writes: "The heart of the tree is hard and black, and is used for wooden bells for cattle, making small canoes, &c." Dr. Brandis refers it to the genus

Inga.

ပုန်းဝဲဇာ။

IRON WOOD.

This is a species of the old genus acacia, and thetimber is very generally denominated iron wood. It is so hard, that in Toungoo two rupees and a half are said to have a post rounded into shape, and the carpenters are reluctant to try their tools on it at any price. It is as impervious to white ants as teak, and is even more durable in the ground. Natives have assured me that they have seen house posts of this wood taken up after having stood forty years, and that the part which had been buried was as sound as new timber. The trees abound from Mergui to Toungoo.

It has been recently proposed to send to Australia for timber to make sleepers for the rail-ways, but where could better timber be

procured for the purpose than the iron wood of Pegu and the Tenasserim provinces?

Inga xylocarva.
Acacia "
ဗျင်းကတိုး။ ဗွဲ့ ဖွ။

DALBERGIA.

Dalbergia is another leguminous genus that affords hard timber from several species.

CHISEL-HANDLE TREE.

A common forest tree produces a hard, fine-grained wood which the Karens call the egg tree, and the Burmese the chisel-handle tree, its wood being much used for chisel handles. I have not seen the flower, but the fruit identifies it with Roxburgh's genus dalbergia.

Dalbergia.
သစ်ဆောက်ရိုး။ ခွ့ဆာ့ဒံ့. ခွဉ်ဆီဒံဉ်။

MAULMAIN LANCE-WOOD.

There is a tree found all over the Tenasserim Provinces which yields a wood that the residents at Maulmain sometimes call lance-wood. The Karens make bows of it, but prefer *Cassia fistula.* I have never met with the tree in flower, but think it a species of dalbergia.

Dalbergia.
မြောက်ရှော။ မြောက်ချော။ မြောက်ဝိုး။
ခွ့အွဲလာ့. ခွဉ်ဝါလီ။

BLACK WOOD.

Under the Burman name of yendaik, the wood of two different trees is sometimes seen. One, a species of ebony, and the other a leguminous tree that I judge to be a species of *Dalbergia.* It is very abundant at Toungoo, where the Karens use it for spear handles. It resembles the black wood of Hindustan.

Dalbergia latifolia?
ရင်းတိုက်။ သစ်တဆိန်။ (*Tavoy.*)
ခွ့စံ့. ခွဉ်ဝ့။

OTHER SPECIES.

Two other species of dalbergia are

Dalbergia glauca.
ဒေါက်တလောက်။
Dalbergia reniformis.
ဒေါက်လောင်။

TENASSERIM MAHOGANY.

The gum kino tree, *Pterocarpus,* or padouk, produces a timber which in its finest specimens bears so strong a resemblance to

mahogany, that a visitor mistook it for mahogany, and recorded it as such in the book of his travels. At Maulmain it is called red-wood, and one of the trees, for there are two species, differs very slightly from the tree which yields the Andaman red-wood, of which Roxburgh wrote: "Wood not unlike mahogany, but more heavy, red, and coarse in the grain. That of the root beautifully variegated, closer grained, and darker coloured."

Pterocarpus Wallachii.
" *dalbergioides.*

ပတောက်။ ကျုကျဲ့. ကျီကျွန်။

MOUNTAIN EBONY.

Loudon calls *Bauhinia,* mountain ebony, and the wood, though not much like ebony, is quite hard, and might be applied to many useful purposes. To the five species which are enumerated among the flowering plants, may be added a small timber tree bearing a sour leaf, and a pod containing sweet pulp, like the honey locust of America. I have not seen the flower, but the twin leaf is that of a bauhinia.

Bauhinia.

ရှည်ပျတ်။ ဖီဇုဆဲ့. ကပုဆံ့။

ERYTHRINA.

The genus *Erythrina* produces two or three small timber trees, that afford useful soft woods.

MOOTCHEE WOOD.

One species supplies a soft, white wood, as easily worked as the pine, which might be made available for many economical purposes.

Erythrina indica.

ကသစ်။ ဆိုထံ့. ဆာထံ။

MOUNTAIN CORAL TREE.

A fine looking timber tree of the same genus as the preceding, but producing a reddish wood, is not uncommon in the interior. The Karens select the tree in preference to all others on which to train their betel vines.

Erythrina.

တောင်ကသစ်။ ဆိုထီ့. ဆာဓိ။

SEA CORAL TREE.

A common species of Erythrina at Toungoo has small thorns on the trunk, and produces reddish flowers. It is famous in Budhist mythology as the tree around which the Devas dance till they are intoxicated in Sudra's heaven.

Erythrina.

ပင်လယ်ကသစ်။

SOPHORA.

Dr. McClelland mentions *Ormosia dasyacarpa* among the timber trees of Pegu, which he says the Burmese call *thit-wa-yee*.

Sophora robusta.

သစ်ဝါကြီး

INDIGO TREE.

A species of indigo, "a tree four or five feet in girth," is enumerated in McClelland's report. The Burmese name given is *doun-da-loun*, which appears like the name given to the horse-raddish tree.

Indigofera.

ဒန်းသလွန်း

BOMBAY BLACKWOOD.

Bombay blackwood is among the Pegu products recorded by McClelland.

Cassia sumatrana.

ခဲမဲ

CONMARUS.

A tree with a remarkably bright scarlet pod, is often seen in the jungles, and produces, says McClelland, a large, heavy and strong timber.

Connarus speciosa.

ခွေးထွာကိ

DILLENIA.

The dilleniads are the magnolias of Burmah, of which the Karens distinguish four species. Wight says "they afford valuable timber on account of its hardness and durability;" but this does not accord with my experience, for I have found it the reverse of being durable. McClelland enumerates three species and says: "They all three afford large and good timber for house building."

There is much confusion in the application of the native names. I have found *D. ornata* called *sen-bwon*, [1] or *zen-bymon*; [2] but McClelland applies this name to *D. angusta*; and Dr. Brandis to *D. scabra*; while this latter species, McClelland denominates *byeu*,[3] a name that I have always heard applied to species of mangroves. McClelland found *D. speciosa* in Pegu, which he calls *tha-byeu*,[4] the name of a species in the Tenasserim Provinces that does not exactly agree with Roxburgh's description of *D. speciosa*.

Major Berdmore wrote of *zen-bywon*: "This tree produces an edible fruit. The wood, which is yellow, is used for beams and rafters."

Dillenia.

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[1] စင်ပွန်း [2] ဇင်ပွန်း [3] ပြူ [4] သပြူ

TERMINALIA.

I believe every species of Roxburgh's genus *Terminalia*, yields useful timber. Chebula and bellerica, mentioned as indigenous in another part of this work, are well known to do so. A still larger tree is common in the interior, whose winged fruit indicates its connection with the sub-genus *pentaptera*. Major Berdmore mentions a tree at Shwaygyeen which is probably a pentaptera. "The bark of this tree," he writes, "is used for extracting a black dye. It is employed in dying fish nets" It is not improbably the tree described by McClelland, with "timber strong as teak, seven to nine feet girth."

Pentaptera glabra.

တောက်ကျန့်။ စခိးဒြိုး။

McClelland enumerates another species of *Terminalia* affording "large timber."

Terminalia violata.

လဲဘွဲ။

BITTER WOOD.

The bitter wood, a small tree used for boats in the neighborhood of Amherst, is particularly desirable for being, as Mr. O'Riley states, "exempt from the attack of the teredo." The bark is sold in bazar to chew with betel. I have never seen the tree, but its leaves and fruit were furnished me by Mr. O'Riley, and they indicate it to be a species of terminalia, and of the section pentaptera. The good timber, and bitter bark assimilate it to Roxburgh's *P. Arjuna*, but the foliation is different. McClelland, however, reports *P. arjuana* in Pegu, and he probably refers to the same tree.

သစ်ခါး။ ကသစ်ခါး။ ရှစ်ခါး။ *(Tavoy.)*

ဝှုခၢဖံ့. တကိဝဲး။

A tree that seems to be a species of pentaptera is mentioned in the Burmese books under the name of

ပိတောက်။

MYRTLE BLOOMS.

The family to which the myrtle belongs produces a few timber trees in Burmah.

EUGENIA.

The genus *Eugenia*, now divided into *Acmena* and *syzygium*, is represented by more than a dozen species in Burmah all producing a small timber used by the natives. The Burmese generic name is *tha-byæ*.

Acmena.

Syzygium.

သပြေ။

SOUR SONNERATIA.

A species of sonneratia abounds in the mangrove swamps, and on the banks of almost every stream on the coast as far as tide-waters reach, which the natives use for various economical purposes, and it is said to be "a better substitute for coal in steamers than any other kind of wood."

Sonneratia acida.

တပူ။ တမူ။ ခွဘဲ့ ခွဉ်ခိဉ်ကျေး။

CAREYA.

An arboreous species of careya, a genus named after Dr. Carey, furnishes a useful timber for house building. In some parts of India matchlocks are made from a species of careya.

Careya arborea.

ဘန်ဆွေး။ ကဗွီ။ (*Tavoy.*) ပဂွီ။
ခညဉ်အုဉ်ပါး။ ပကွံ။

BURMESE BOX-WOOD.

Wallich found *Nauclea cordifolia* on the banks of the Irrawaddy, which has wood "coloured like that of the box tree, but much lighter, and at the same time very close grained."

Nauclea cordifolia.

TAVOY BOX-WOOD.

A tree which is called *may-kay* at Tavoy, Wallich reported as having "a strong tough wood, in grain like box."

Murraya.

မယ်ကယ်။

MANGOSTEEN FAMILY.

The tribe which produces the mangosteen and gamboge trees affords several species of valuable timber trees. The iron wood tree of Ceylon is the mesua which abounds in some districts, and the yellow varnish tree, *garcinia Roxburghii*, produces a useful timber.

GARCINIA.

There is a species of *garcinia* which the Burmese call *para-wa*, that grows to the largest tree of the genus, and whose timber is valued by the natives.

Garcinia.

ပရဝါ။

CALOPHYLLUM.

Besides the *Inophyllum*, there is another species which affords good timber, that the Burmese call *tha-ra-bee.* It is used for spars.

Calophyllum.

သရဘီ။

TEA TRIBE.

There are several trees belonging to the family which produces the tea plant; one of which affords a timber much used by the natives.

GORDONIA.

Gordonia is called "itch-wood" by the Burmese, from the itching which its chips or bark occasion when brought in contact with the skin. I have often seen its compact timber used for house posts, and for rice mortars.

Gordonia floribunda.
" *integrifolia.*

သစ်ရှား။ ယံ, ကယိုဝး၊

SOAP-NUT FAMILY.

There are several valuable timber trees in Burmah belonging to the *Sapindaceæ* or soap-worts, and its sub-order *Millingtonieæ*.

BROWN-RED SOAP-BERRY.

This tree bears a small red fruit in bunches that is eaten by the natives, and "the wood of this tree," writes Roxburgh, is very useful for a great variety of purposes; being large, straight, strong and durable; towards the centre it is chocolate-coloured.

Sapindus rubiginosus.

ဆိပ်ချေး။ ယုဒ္ဓု. လိုဂိုး.

MALICOCCA.

This is a tree that Major Berdmore says abounds in Shway-gyeen, and is used for pestles of mortars and axles of wheels. McClelland writes: "A most valuable timber, in great perfection above Toungoo."

Melicocca trijuga, McClell.

ကျိုး၊ ကျိုး၊

MILLINGTONIA.

This is a common tree, in Toungoo, bearing a terminal panicle of small yellowish flowers. Roxburgh says: "The timber is used for various purposes;" McClelland: "Its properties as a timber are valuable from its weight and strength."

Millingtonia simplicifolia.

COTTON-TREE TRIBE.

The natural family to which the cotton trees belong affords one or two useful timber trees, of which the soondree is the principal.

SOONDREE.

The soondree is a gloomy looking tree that may be distinguished from all others for many miles distant. It is remarkably characteristic of a peculiar soil. Wherever the tides occasionally rise and innundate the land, this tree is sure to be found throughout the whole coast, but it is never found at home, either on the

high dry lands on the one hand, nor in the wet mangrove swamp on the other. It is the tree which was described by Dr. Buchanan Hamilton, who accompanied Symmes' embassy as *Heritiera Fomes.* It is the toughest wood that has been tested in India. When Rangoon teak broke with a weight of 870 pounds, soondree sustained 1312 pounds It is not a very durable wood, but stands without a rival in strength, although so common on the other coast, as to give name, as Captain Munro thinks, to the Soonderbunds, yet the tree grows much larger in Burmah and affords finer timber.

Heritiera minor.
" *Fomes.*

ကနုစို။ ကဆော။ (*Tavoy.*) ကရိုဉ်စိုဉ်၊ ကရိုဒိ၂.

Dr. McClelland recognizes a second species.

Heritiera litoralis.

CHOCOLATE TREE TRIBE.

Several valuable timber trees in Burmah are related to the chocolate nut tree family. The principal ones are species of *Pterospermum, kydia,* and *Eriolæna.*

PTEROSPERMUM.

Three species of this genus, McClelland says, "are found growing with teak in all the forests. This timber is extremely valuable and is as strong as either teak or oak. It attains a girth of ten or twelve feet, and rises to a lofty height."

Pterospermum aceroides, tha ma jam wai-soke, Mc.
" *subacerifolium, najee,* "
" *acerifolium.*

တောင်ဇက်ဝမ်။ *B*

KYDIA.

The saplings of a species of *Kydia,* McClelland says are used for their great strength and elasticity for making banghy sticks.

Kydia calycina.

ဗုတ်ခဲစါ။

ERIOLŒNA.

A timber tree that Dr. Brandis refers to the genus *Eriolæna,* Major Berdmore says: "Produces a red wood used for building purposes, and making rice pounders and paddles."

Eriolæna.

ထွန်။ သွန်။

LINDEN TREES.

The linden trees are represented in Burmah, by the Salwen trees which give name to the river, belonging to the same natural family according to Lindley, and as famous in Burmah as the lindens are in Berlin.

SALWEN.

The salwen trees which give name to the river Salwen, have been called olive trees; but the flower and fruit of the tree that the Burmese have pointed out to me for the salwen, are decidedly those of a species of

Elæocarpus.

သံလွင်။

ELŒOCARPUS.

A hard valuable timber tree is very abundant in the neighborhood of Rangoon, and not uncommon in some parts of the Tenasserim Provinces, belonging to the genus elœocarpus. Carts are sometimes constructed of it, and it is used in house and boat building.

Elæocarpus.

တောဓကည်။ သန်ဓကည်။

GREWIA.

Grewia is another genus belonging to the linden family, of which there are several species in this country, producing small but useful timber.

GREWIA.

At Tavoy, when vessels require spars they are usually furnished from a small tree which grows on the sea-board, belonging to the genus grewia.

Grewia.

တရေ၌။

TRINCOMALEE WOOD.

Dr. Helfer mentions the tree which produces the Trincomalee wood as growing on King's Island opposite Mergui. It is a light, strong, valuable wood.

Berrya Ammonilla.

PHET-WON.

This Burmese name is applied in some districts to weed-like plants of the genera *Triumphetta* and *corchorus*; but it is also the name of a tree which Major Berdmore says is "used for making ploughs, and is sawn up for building purposes. It has a red color. It is also used for spear handles." Dr. Brandis says it is either a *Tiliaceæ* or *Bytneriaceæ*, I think the former. Mc'lelland gives this name for two species of *grewia*, and represents them as producing white wood.

Grewia spectabilis.

" *Hookerii.*

ဓတ်ဝမ်။ ထက်ဝန်း။

JAROOL.

The genus *Lagerstræmia* of the Loostrife family furnishes two or three species of timber trees of which the most valuable is the

jarool; a tree that is very rare on the other coast, but exceedingly abundant on the low lands in Burmah, from Mergui to Toungoo. The posts of an old wharf at Tavoy which were of this wood, stood erect for twenty or thirty years; but house posts often decay in the ground in a much shorter period. It is considered a valuable timber in ship building. It does not appear to me to differ materially from Roxburgh's *L. regina*, but Falconer referred it to *L. macrocarpa*, and McClelland to *L. pyenma*.

Lagerstrœmia Reginæ.

ဗျင်းမ။ ခမောင်းနီ။ ဆွာ့. ဒွီ။

WHITE TREE.

A tall straight tree with remarkably white smooth bark is common at Toungoo. I have not seen it in flower, but McClelland refers it doubtfully to *Sibia*. It produces a compact close grained wood.

Sibia (Lagerstrœmia) *glomerata.*

သစ်ဖြူ။

WHITE JAROOL.

There is a tree at Tavoy which the Tavoyers call *kha-moung-phyu*, or white Jarool, whose timber is used, but it is considered inferior to the red Jarool. Dr. Brandis met with a white *pyenma* in Pegu.

Lagerstrœmia.

ဗျင်းမဖြူ။ ခမောင်းဖြူ။ ဆွာ့ခါ့. ဒွီခွါ။

HLEE-ZA.

This is a tree in Pegu which Dr. Brandis refers to *Lagerstrœmia*. Major Berdmore wrote: "The wood is used in building, and also for making paddles. Its colour is red."

Lagerstrœmia.

လှည်းစါ။

WAX WOOD.

A tree which produces a wood the colour of bees wax, the Burmese call *theet-pa-young*, or wax wood. Major Berdmore says "the wood is straight grained, and used for house posts, but is not durable."

Nauclea ?

သစ်ဖရောင်း။

ALSTONIA.

There is a tree in the jungles which Dr. Brandis refers doubtfully to the genus *Alstonia*, of which Major Berdmore writes: "The Burmese chop the wood into small pieces and boil it with jaggery and mix with tobacco in making segars. The wood is

very white and smooth, used in making yokes. Bark used by native doctors to cure rheumatism."

Alstonia.

သက်ထုတ်။

NEEM TREE TRIBE.

The neem tree family furnishes several useful timber trees.

XYLOCARPUS.

Besides *X. granatum*, there is another species of the genus that grows on low lands near the sea coast, of which canoes are occasionally made; and the wood is much used for sandals. It is a red wood which turns black on being anointed with petroleum.

Xylocarpus.

ကြနန်း ကြိတ်နန်း ကျတ်နှံ။

WALSURA.

Walsura piscidia produces, says McClelland, a timber large, heavy, and strong; and is abundant in Pegu.

Walsura piscidia.

AGLAIA.

Dr. McClelland states that "a light serviceable timber, somewhat stronger than American pine," is produced by

Aglaia spectabilis.

MAHOGANY TRIBE.

The mahogany tree may be occasionally seen in cultivation, and we have one or two valuable members of the family indigenous.

TOON TREE.

Major Nuthall was first to find the tree which produces toon, a wood resembling mahogany, in Arracan, and Dr McClelland has since reported its existence in Pegu; the Burmese name, however, is applied in some districts to a species of sterculia.

Cedrela Toona.

သစ်ကတိုး။

CANARIUM.

There is, according to Dr. McClelland, a large valuable timber tree found in the Pegu valley, which is

Canarium geniculatum.

CHITTAGONG WOOD.

"The wood of this tree," says Roxburgh, is closed-grained, light-coloured, elegantly veined, and employed by the cabinet makers." McClelland reports it "found with teak in the Pegu district."

Chickrassia tabularis,		Wight.
Swietenia chickrassa,		Roxb.
ငဘဲ။	*nga-bai,*	McClell.

CHERRY TRIBE.

There is one large timber tree of the natural family which produces the cherry in the Tenasserim Provinces, and according to McClelland the same or an allied species is found at Toungoo, where it is the tree of "five or six feet girth."

Pygium acuminata.

TEREBINTH TREES.

The terebinth family produces several useful timber trees; among which are the black varnish tree, the mango, a species of sumach, and others noted below.

TAVOY RED-WOOD.

Tavoy red-wood makes handsome furniture, and is used in Tavoy for the same purposes to which gum kino wood is applied at Maulmain. When the wood is steeped in ferruginous mud, it turns jet black, and looks like ebony. The large cylinder knobs, one or two inches in diameter, so often noticed in the ears of Karen women at Tavoy, are made of this wood after the colour has been changed

Syndesmis Tavoyana.

ချေး။ ကျွဲယိုး. ရှုဇ့ဉ်။

Dr. McClelland reports *Semecarpus anacardium* in Pegu with the same Burmese name as the above, *chai.*

ODINA.

A species of *Odina* is not uncommon from Maulmain to Toungoo, which produces a valuable timber. Major Berdmore says; "It is much used at Shwaygyen in the manufacture of oil presses and rice pounders. The wood is red and very hard; and the tree attains a girth of twelve feet."

Odina wodier.

နှိုဘဲ။ နုဝဲ။ လီဖဲဉ်။ လျှဲဖဲ၊

OAK.

Wallich found seven different species of oak growing in Burmah. Three or four are natives of the Tenasserim Provinces, and all afford useful timber, though inferior to the English oak.

Quercus fenestrata.
" *turbinata* ?
" *velutina.*

တဝိတ်။ ဝ့ၢ. ဝ့။

Quercus Amherstianus, *Wall*
Tirbbæ. "

ELM.

Dr. McClelland reports two species of elm in the Prome dis-

trict ; the largest trees in the Province. He gives *tha-lai* for the Burmese name.

Ulmis alternifolius.
" *integrifolius.*
သလဲ။

MOUNTAIN JACK.

The mountain jack is deemed a valuable timber by the natives, especially for canoes. Wallich says: "It produces a sort of caoutchouc, with which the Burmese pay their boats." I imagine this is a mistake. The Burmese almost universally pay their boats with a substance that is produced by a bee, mixed sometimes with dammer.

Artocarpus echinatus.
တောင်ဓိမ်။ တောင်ပိန်။ *(Tavoy.)* ၁၇. ၁၇။

BEEFWOOD.

Beef-wood is imported into the United States in considerable quantities, for various purposes where a hard heavy wood is required, and the casuarina on our coast can furnish almost any quantity of this timber, but it is very little used. Roxburgh says it resembles toon in appearance. The natives call it by the same name as the pine.

Casuarina muricata.
ထင်းရူး။ ရှိုး—ဆူးပနိုး. ဆှိ။

Dr. McClelland reports another species in Pegu which produces "a strong close-grained timber."

Casuarina muricata.
သပျဝတ်ကျာ။

MANGROVE.

The species of mangrove most abundant along our shores furnishes hard and durable timber. The tree is easily distinguished from its associates, for it drops no roots from its branches, but the trunk is divided into numerous roots for half its height, like a small bamboo pavilion.

Bruguiera Rheedii.
Rhizophora gymnorrhiza.
ပြူ။ ဘုဖုးထီး. ဘုဉ်ဖုးထီး

CONOCARPUS.

Dr. McClelland enumerates *conocarpus robusta* among the Pegu trees, which he says affords very large strong timber. *Bai-byah*, the Burmese name he gives, appears to be the name they give to the *coreya arborea.*

LAURUS.

The genus *Laurus*, furnishes us with several timber trees in Burmah.

MARTABAN CAMPHOR WOOD.

This is a very large tree scattered sparsely throughout the Tenasserim Provinces. Wallich wrote that it was very like *Laurus glandulifera*, which furnishes the sassafras, and camphor wood of Nepaul. The Karens call it the " tree galanga, " from its fragrance.

Laurus (sassafras.)

ကရွေး။ ဝှုဆိုး. ဝှဉ်ဆူ။

SASSAFRAS.

A species of of laurus with the odour of sassafras, is often used in house carpentry.

Laurus (sassafras,)

မှန်သင်။ ငလင်ကျော်။ ကိုလွ. ကိုးလွှ်။

LAURUS KYAIZAI.

A species of laurus producing a hard wood used in carpentry, is seen in Tavoy, where it is called kyaizai.

Laurus.

ကျဲစဲ။ ဝံၵၵဒုဖၵဒြၵ။ ကဝံဉ်ဝွဖးဒြဉ်။

LAURUS.

A solitary post of a species of laurus is often found in Tavoy houses. There was one in mine, which the white ants selected in preference to all others ; and as long as left undisturbed, they never wanderd from home. It may be an advantage to have one post in a house of this timber, but one is quite sufficient.

Laurus nitida, McClell.

ငန်းနသာ။

BASSIA.

In the southern Provinces, the bassia tree is quite abundant in a few localities ; and it is said to afford a timber in no way inferior to teak.

Bassia longifolia.

ကမ်စော။ ကျစီး. ကိုဉ်စိုဉ်။

EBONY.

There are several species of ebony in the country. Mr. Parish found *Diospyros glutinosa* at Maulmain. Dr. McClelland *D. melanoxylon* in Pegu. where he says it is called *oukchinya.* I have met with a species that the Burmese call *yendaik*, the same name they apply to the dalbergia black wood. *Boke* is a name given to two species of ebony in Tavoy. One grows near the sea and is called sea-boke, the other in the interior and is denominated jungle boke.

ပင်လယ်ဗုတ်။ တောဗုတ်။

BOX-LEAVED MABBA.

Of the ebony tribe, is a hard, tough, knotty wood, which the Tavoyers select for anchors to their large boats, wooden anchors laden with stones constituting the greater part in use.

Mabba buxifolia.

မဲပျောင်။ ဆူးဝင်း ဆူးဝင်း။

TRUMPET FLOWER TRIBE.

The timber of several species of *Bignonia* is used by the natives, in both house building, and boat building, which the Burmese call *than-theet.* A species of the allied genus *Spathodea,* Major Berdmore describes under the name of *bet-than,* with "wood used in making furniture, paddles &c."; and a second species *thakhwot,* as having "wood of an excellent quality for building purposes."

Spathodea Rheedii, Brandis.

သခွပ်။

TWO-SEEDED CASTOR OIL TREE.

Dr. McClelland reports *Ricinus dicocca,* a "very tall large timber tree" in Pegu and Toungoo. The Burmese name which he gives, *taw-the-din-bin,* usually designates *Rottlera tinctoria.*

Ricinus dicocca.

တောသီတင်။

TENASSERIM LANCE WOOD.

A tree which produces a timber possessing the properties of lance wood, is not uncommon at Tavoy, belonging to the dog-bane family, and is called by the Burmese *myet-hna-ban.* I have not met with the tree at Maulmain, but I found the Burmans gave the same name to a widely different plant of the *Cinchona,* or coffee wood family. Major Berdmore has the same native name in his list of Shwaygyeen woods, and says it "is used in making furniture, bows, &c."

Apocynaceæ.

မျက်နှာပန်။ ဆိုမၥပါ. မှုးနပဉ်။

FAGRÆA.

The fagræa which belongs to the nux vomica tribe, yields a very hard and excellent timber, which Mr. O'Riley says the teredo will not attack. The Burmese regard it as too good for the laity, and say it ought to be confined to sacerdotal purposes. At Tavoy it is used principally for the posts of Budhist edifices.

Fagræa fragrans.

အနန်။ ဆူၥနဲး. ဆူးကနဲဉ်။

WILD NUTMEG TREE.

There are one or two trees, which I have noticed in the southern provinces, belonging to the genus which contains the nutmeg,

but the fruit has none of the aroma of a nutmeg; the timber which is large, is used by the natives in house carpentry. Griffith found only one species, "apparently," he says, "referrable to Lourier's genus knema." Wallich, however, met with two, and referred both to myristica.

Myristica amygdalina ?
" *spærocarpa ?*

ကျွဲသွီး၊ တူးဖျူး. တုပ်ကဖျိုး၊
တောင်ဝံကား၊ , ဘွဲ့လာဒၢ. ဆူးပီဝါ၊ ?

SPINDLE TREE.

McClelland mentions a strong timber produced by a species of spindle tree.

Eloæodendron integrifolia.

ဆောက်။

SELUNG BOAT TIMBER.

The Selungs of the Mergui Archipelago shoot over their waters with remarkably light boats, and they owe their buoyancy to the materials that form their sides, which are the stems of the edible zalacca. These stems are as light, and of the consistency of cork, for which they are often substituted; and the Selungs are skilful in uniting them together to serve instead of planks, so as to make an unequalled sea boat, that floats on the waves like a swan.

Zalacca edulis.

ရင်ကမ်။ ခိုး. စခီး၊

DAMMER PINE.

Griffith mentions *Agathis loranthiflora*, or the dammer pine, as a member of the Tenasserim Flora, and I have seen the young plants of the tree to which he must refer. The leaf is precisely that of the dammer pine, but it is not known to yield any dammer. The wood is white, rather light, and bears considerable resemblance to some kinds of pine. It is used by native carpenters for various purposes, and the Burmese have a superstition that the beams or balances of their scales ought to be formed of this wood. They call it *theet-men*, king of woods. "It is used by them," says Major Berdmore, "to avert evil, by driving a peg of it into a house post or a boat. It is very hard."

Agathis loranthifolia.

သစ်မင်။ ဘွဲ့ဝၢလၢ. ဘံမံဆူး။

PINE.

Some twenty years ago the residents of Maulmain were not a little surprised to find, among the drift wood of the Salwen, a log of some coniferous tree. This was the first intimation that any tree of the pine tribe grew on the borders of these Provinces; but whether it were of the genus pinus, or abies, or larix—a pine, a fir, or a larch, did not appear. It was several years after this occur-

rence, that one of our former Commissioners told me he had offered a hundred rupees to any of the foresters who would bring down a spar of this tree. Spars have been since brought down, but it is believed that Capt. Latter was the first European to visit the locality where the tree is indigenous, and from specimens of the foliage and fruit, which he brought away, it appears to be a new species of pine that may be characterized thus:

P. Latteri.—Arbor 50 60 pedalis, cortice scabro, foliis geminis 7-8 uncialibus caniculatis serratis scabriosculo, strobilis 4 uncialibus ovato-conicis, squamis rombeis inermis.

Hab.—In provincia *Amherst*: in convalli fluvii Thoungyeen.

Descr.—A tree from 50 to 60 feet high, or more, and from 1½ to 2 feet or more in diameter. Sheaths of the leaves arranged spirally, tubular, membranous, six lines long, leaves two from each sheath, equal, from 7 to 8 inches long, acute with a sharp point, convex on the back, slightly scabrous with eight rows, in pairs, of very minute thorns which produce a striated appearance, hollow on the under surface, serrated. Cones ovate-conical, nearly four inches long. Scales rhomboid, unarmed.

The wood appears to contain more resinous matter than any other species of coniferæ I ever saw, and large quantities of both pitch and tar might be manufactured in the forests, if a remunerative price could be obtained for the article.

A pine grows very abundantly beyond the water-shed east of Toungoo, and a few in the south, are seen on the west side. This Dr. Brandis regards as another new species, of which he has a description in preparation.

Pinus Latteri.

ထင်းရူး. ရှိ.—ဆူးပဂုနဲ့. ဆိ.

Geology.

The Tenasserim Provinces and Burmah are bounded on the east by a belt of granite mountains, with a chain of boiling springs at their base; and on the west by a line of active volcanoes, which extends from Summatra to the Island of Ramree. They are most active in Summatra; less so on Barren Island, off the Tenasserim coast; but where the smoke is constantly seen ascending from them by mariners who pass in sight of that island; and at Kyoukphu on the north point of Ramree, they appear only in the form of mud volcanoes, such as are found on the coasts of Chili, and Calabria. These mud volcanoes usually throw up water and gas; but occasionally smoke and flame issue from them. During an earthquake that occurred in 1833, the vapour and flame were seen to issue several hundred feet above the summit of one in sight of the town of Kyoukphu. In the neighborhood of the village of Memboo, below Pugan, Yule says there are several mud volcanoes in constant operation.

"The Island of Cheduba," says McClelland, "is represented in most old charts as a burning mountain, from which it may be alleged that early surveyors witnessed its eruption." During an earthquake in 1762, it is recorded that "sixty square miles of the Chittagong coast suddenly and permanently subsided. Ces-lung-toom, one of the Mug mountains, entirely disappeared, and another sunk so low that its summit only remained visible. Four hills are described as having been variously rent asunder, leaving open chasms differing from thirty to sixty feet in width. In the plain the earth opened in several places, throwing up water and mud of a sulphurous smell. At Barchana two hundred lives were lost on a tract of ground that sunk suddenly, but it is said that at Arakan, where it was supposed the chief force was displayed, the effects were as fatal as those of the earthquake which happened about the same period at Lisbon."

A violent earthquake occurred in the neighborhood of Ava and Amarapoora a few years ago, which threw down many hundred houses; and within a few months, the prin-

cipal pagoda at Prome was prostrated by an earthquake, which was felt in Toungoo, so as to produce giddiness in those who stood on the rocking ground, as in a rolling ship at sea.

IRRAWADDY VALLEY.

"The geological structure of the Irrawaddy," says Prof. Oldham, "so far north as I was able to see it, is very simple. From the first appearance of the rocks at Akouktoung, above the delta of the river, up to Kyouktaloung, not far from the old capital of Ava, nothing but tertiary rocks appear in the river valley. Of those tertiary rocks, the main or prevalent state corresponds nearly with the direction of the river channel. Resting upon the broken edges of these beds there is another series of strata of sandstones and conglomerates, for the most part much softer than the former. The geological age of the older group appears to be tolerably well established, as being of the Eocene epoch." The more recent group is uncertain. They are regarded as corresponding to the Siwalik group, and Prof. Oldham thinks they may be miocene.

In the neighborhood of Ava, primitive rocks appear, and the lower beds at Sagaing are "micaceous gneiss."

SITANG VALLEY.

The rocks that show themselves in the river are usually laterite, but on going east sandstones or shales are soon reached, and beyond them mountain limestone, primitive slates, and granite. Nearly all the mountains in the eastern districts of Toungoo are granite, but the line of water-shed between the valleys of the Sitang and the Salwen is sandstone and slate.

SALWEN VALLEY.

The river has belts of granite mountains on both the east and west, but laterite, sandstones, shales and limestone are found near its banks. The mountain limestone is remarkably abundant. It affords the most picturesque portion of the scenery at Maulmain, and the table land of the Red Karens, three degrees farther north, is pillared on this same formation, as on a gigantic terrace. Its buttresses of mountain limestone, thousands of feet high, are seen all round its southern margin.

TENASSERIM COAST.

GRANITE.

We step on shore at Amherst on granite, we meet with it on Double Island, Calagouk, and the islands opposite Yay, and from the mouth of Yay river to Tavoy Point, the coast is one unbroken chain of granite. Beyond the Point this rock again appears, but is lost on the main land below the mouth of Pai river. There is also granite on King's Island, and probably on some of the islands north of it. This granite, wherever I have observed it, is composed of quartz, mica, and felspar, the latter usually white; and sometimes in crystals an inch long, constituting porphyritic granite.

On traversing the Provinces in the latitude of Tavoy, another granite range is seen about fifteen miles east of Tavoy river, which rises in some places two or three thousand feet high, and which I have traced in the S. S. E. direction to the vicinity of Mergui, and to the N. N. W. beyond the Burman villages, where granite appears crossing the river. This, however, is rarely if ever porphyritic, but the crystals of mica are often of considerable size, and the felspar frequently soft and decaying. It is in this range that the tin of Tavoy Province is chiefly found.

The dangerous reef called the "Cows," near where Tavoy river disembogues itself, is formed of porphyritic granite, containing large crystals of flesh-coloured felspar. This variety has acquired the local name of *nwa-gyouk*.

It is probably so called from its resemblance to the color of a red cow; but tradition says that these rocks were originally a drove of cows which opposed Budhism, and attempted to cross the river to beat down the pagoda opposite, on Tavoy Point, but the divinity looking out from the pagoda exclaimed, "Those are not cows, they are rocks;" when they were all immediately changed to stone.

It is a curious fact that while these ledges, which are constantly exposed to the water and the weather are remarkable for their hardness, rocks of the same composition, at a locality not a mile distant on the shore, are in a complete state of disintegration, so that the crystals composing them may be picked out by the fingers. This fact tends to show that the disintegration of granite, is attributable to other causes than exposure to the weather.

Passing still farther east and down the Tenasserim, in about latitude 13° 40', the river runs over a broad belt of granite, which has the same general features as the preceding. This is the most eastern granite that I have met with in the province.

On proceeding up the river from Amherst to the head-waters of the Dahgyaing, no indication of granite occurs from Amherst Point to the base of the eastern mountains, where granite bould-

ers appear in the brooks. This granite contains numerous crystals of schorl, but is apparently destitute of tin; for it is not known that tin has ever been worked in Amherst Province.

Mr. Lonsdale, the editor of the *Maulmain Chronicle*, says: "Granite is to be seen in abundance on the crest of that high range of mountains which runs nearly parallel with the Thoungyin river, on the Shan or right bank. The mountains behind Martaban are granite, and the same granite extends northward, to an unknown distance beyond Toungoo.

ကျောက်နှံဆတ် *kyouk-hnan-bat.*

GRANITE VEINS.

In a sandstone hill near Mergui is a vein of granite, three feet thick, as described by Captain Tremenheere, which is a great repository of tin. Granite veins are seen in granite near Tavoy point; and there is a narrow vein of granite on the summit of the mountain range, that bounds the valley of Tavoy river on its east side. At Amherst, granite veins are numerous, mixed with greenstone dykes.

SYENITE.

Referring to the mountainous range in the north-east part of Amherst Province, Dr. Helfer says: "In some parts occurs syenite, and only in one place granite." I have seen no syenite in the Provinces, yet it may possibly exist in those mountains, though not probable. Granite boulders with schorl, that I collected at the base of those mountains, have been sometimes erroneously termed syenite. Syenite however is found near Sagaing.

GREENSTONE.

At Amherst point the rocks are principally greenstone, with veins of granite and quartz. It has never been analyzed, but its mineral contents are manifestly different from the common greenstone of Europe and America. It has no indications of felspar, but contains considerable silex. It probably consists of hornblende, and quartz. Mr. Crawford enumerates all the other rocks at Amherst correctly, but does not mention greenstone. He has quartz rock in his list, in which he may have included the greenstone.

GREENSTONE SLATE.

Greenstone slate, or diorite slate, forms large dykes in all the three belts of granite in the southern provinces. Baron des Granges, to whom I submitted specimens, said that the greenstone slate in the granite range nearest the sea was composed of "flint (silicum) and hornblende." The quantity of hornblende must however be small, for it has the appearanc of a silicious rock. It is very hard, but has often a trappous structure, falling into angular pieces. To this rock we are indebted for nearly all our cascades. It often forms precipices, over which the mountain

streams leap, and foam with great beauty. Katay river descends several hundred feet over a succession of these precipices; and on the east side of the mountains, nearly in the latitude of Tavoy is the finest fall I have seen in the Provinces. At this place Hidu river falls into a chasm some seventy feet deep, with banks for several hundred yards, as high and precipitous as the wall over which the stream plunges.

There are several cascades in Toungoo also formed by streams falling over greenstone dykes.

IGNEOUS DYKES.

Igneous dykes are not uncommon, but they bear very little resemblance in their mineral contents to the ordinary trap rocks of Europe and America. Some resemble quartz rock, other appear like altered rocks, and many look like sandstone, which has been subjected to the action of fire. That they have been ejected in a soft state is clear from their sides, which in some places abound with hemispherical cavities, into which the soft shales have been pressed, and their pressure probably produced the cavities. The shales are sometimes seen pressed upward many degrees on the upper side of the dyke.

A remarkable dyke is seen in the upper part of the Tenasserim river. It runs like a wall nearly half way across the stream, and is called by the natives the "Giant's dam." It is about twenty feet high above the water, five or six feet thick, with perfect parallel sides, and is inclined some ten or fifteen degrees from a perpendicular. It is a silicious rock, with no traces of hornblende in its composition.

Some of these igneous rocks appear in hand-specimens to resemble grauwacke; and they have been confidently pronounced to be grauwacke, but when viewed in connection with other rocks in situ, their igneous origin is quite apparent.

CLAYSTONE PORPHYRY.

Among the slates and sandstones of Tavoy, claystone porphyry is often seen, but I have never met with it either in Amherst province, or Toungoo; nor is it mentioned by Oldham as occurring on the Irrawaddy.

STRATIFIED ROCKS.

It is worthy of remark that, beginning at Mergui, the line of stratification gradually turns to the west on proceeding north, like the line of the coast. At Mergui the strike of the strata is about two points east of north and west of south; at Tavoy it is two or three points west of north and east of south; at Maulmain three or four, and up the Dahgyaing five or six.

GNEISS.

I have seen no well marked gneiss in the Provinces, but the granite is in some places gnessoid, and Capt. Foley represented the granite hills of Martaban as composed of gneiss. Oldham says the lower beds at Sagaing are "micaceous gneiss."

CLAYSLATE.

Clayslate is a very abundant mineral, and is found in numerous varieties, soft shales, and hard indurated slate abounding in silex; roof-slate, and a variety that soils and writes like graphic slate.

ROOF-SLATE.

In some localities, especially in one near the head waters of a branch of Toung-byouk river, the clayslate cleaves into large thin plates that would serve for roof slates, or for slates to write upon.

SHALE.

Shale characterized as in "layers often uneven, protuberant, or knobby—often disintegrates and falls to pieces," is abundant in the neighborhood of Maulmain, and near the forks of the Tenasserim.

BITUMINOUS SHALE.

Shale containing vegetable impressions, and carbonized stems of plants, is found at the forks of the Tenasserim, and perhaps belongs to the class of bituminous shales, though it does not appear to contain much bitumen.

GRAPHIC SLATE.

A slate that "soils and writes," as Dr. McClelland described it, is found east of Tavoy, and another and softer variety is found in Maulmain near Tremenheerite. They may be justly regarded as varieties of graphic slate.

SILICIOUS SLATE.

Silicious slate is found near the granite mountains east of Tavoy. By some it is denominated indurated slate.

CLAYSTONE.

There is a thick bed of reddish claystone, a few miles east of Tavoy, that cannot be distinguished in hand specimens from Scotch claystone.

IRON CLAY.

Iron clay is very abundant in the laterite, which is often wholly composed of iron clay.

QUARTZ ROCK.

Specimens of what most geologists have characterized as greenstone or greenstone slate, Dr. McClelland called "grey quartz rock;" and where it appears in strata passing into indurated clayslate, it is nearly all silex.

CLAY SLATE.

Clay slate is usually the first stratified rock that rests on the granite. In the Province of Tavoy it is indurated in some places so as to lose its slaty structure, and is a fine compact rock, resembling blue limestone.

MICA SLATE.

Mica slate is seen at Amherst resting on the clay slate; and at Palaw, where the beds are much contorted, characteristic of this rock, no clay slate was observed between it and the granite; but the point of contact was not seen. East of Tavoy, thin beds of clay slate and mica slate alternate near the granite.

PUDDINGSTONE.

On the banks of the Tenasserim, near the eastern base of the mountain, in about latitude 13° 50' are immense masses of puddingstone, consisting of water-worn boulders from a few inches to a foot in diameter, firmly united together, and forming what is often called transition puddingstone.

SANDSTONE.

Sandstone most frequently appears next above the primitive slates, and then alternates with clayslate several times before the limestone appears. In one place, however, a few miles south of Toung-byouk river, red sandstone is seen resting on the granite, no slate being present.

When the stone contains red ochre, as on Siam hill near Tavoy, the Burmese call it ကျွေနီ, *kwe-nee.*

LATERITE.

Laterite is seen lying above the slate at Amherst, and is spread over the sea-coast nearly down to Yay, when the granite appears again, and so far as my observation extends, it is seen no more on the sea-board. In the interior of the southern provinces some portion of the sandstone beds partake of the laterite character; but it is not developed there as in Amherst province. After leaving Amherst point, laterite appears at Maulmain alternating with sandstone, and it is seen distinctly stratified at the base of the eastern mountains, at the head of the Dahgyaing. It is the first rock that appears on the Irrawaddy, at Rangoon; the first on the Sittang, where the fort is on it; and it protrudes at intervals through the alluvium to beyond the city of Toungoo.

This rock seems to be peculiarly Indian. Its name even is not found in European and American works on geology. When not exposed to the weather it has the appearance of a porous iron clay, sometimes including fragments of other rocks, and from its quality of hardening when exposesd to the atmosphere, it has been used extensively for bricks for pagodas and other purposes, and has hence been named Laterite from *Later*—a brick.

Geologists are much divided in opinion whether to regard it as a trap rock, or as a stratified one. In the Tenasserim Provinces, it appears to be more of a conglomerate than any thing else. In some localities, as at Maulmain, it includes large fragments of sandstone, several inches in diameter. The geological position of the laterite at Amherst and Maulmain, is precisely that of decided beds of conglomerate near Tavoy, which lies immediately above the slate strata that rests on the granite.

The Tavoy conglomerate consists mainly of quartz pebbles, or angular fragments of quartz united by oxide of iron, which soils the fingers. Some parts of the strata are so fine that Dr. McClelland pronouced specimens that were sent him to be "sandstone" old. Other parts are coarse with pebbles half an inch in diameter, and in some parts the rock is slightly amygdaloidal, approaching laterite; while on the other hand, there are portions of the laterite at Amherst and Maulmain which are considerably compact, with quartz fragments; and specimens might be selected with ease which could not be distinguished from the Tavoy conglomerate.

The best account of laterite as it is found in the valleys of the Irrawaddy and Sittang, is from the pen of Capt. C. B. Young,* who says: "These eminences are chiefly, if not entirely, composed of laterite. The lower plain country consists of clay and sand; each occasionally predominating, and the former sometimes of a very rich aluminous kind like pipe-clay. The surface soil is always clayey or alluvial, but in making cuttings, as in digging tanks or for roads, it is usual to find the soil at a small depth becoming gritty or gravelly. On examination, this is found to arise from numerous concretions, similar to kunkur, some of a brick-red, some of a black color, in some places the red predominates, in others the black, forming strata running in waving directions through the soil; and the colours are exhibited owing to the nodules being cut through by the tool in the act of digging.

The nodules themselves when picked out of the earth are aggregations of the local coloured clay, round nuclei of the black matter in the centre, and around that the redder material; both having strongly the appearance of owing their origin to an infusion of iron in the soil.

Deeper down the nodules speedily become more numerous, until at last the whole, from the nodules joining and adhering tolerably firmly together, leaving at the same time numerous interstices irregularly shaped between them, assumes the appearance of a nodular clay iron-stone, ætites, or, as it has been called, an iron bound breccia. In this shape it may be dug out and handled in lumps or masses, but these may be readily broken with the hammer, or even by hand. In a more advanced state, it becomes

*Journal Asiatic Society of Bengal, 1853. P. 196.

still more compact and rock-like, tougher and heavier, and in short has all the characteristics and appearances of the more vesicular or spongiform species of laterite. In other places and under other circumstances, its structure becomes more uniform and compact, and of this kind is that of the hill on which the Rangoon great pagoda itself stands, and that from Bassein, where also it appears to be generally redder in colour."

A detailed analysis of specimens of the rock made by Captain James, 32nd N. I. of the Museum of Economic Geology gives the following result.

Mean result of three analyses of laterite from Burmah.

SOLUBLE IN ACIDS.

Peroxide of Iron,	46·279
Alumina,	5·783
Lime,	·742
Magnesia,	·090
Silica,	·120

INSOLUBLE IN ACIDS.

Silica (dissolved by Potash,)	6·728
Silica (by fusion,)	30·728
Lime, Iron and Alumina,	2·728
Combined Water Alkalies and Loss,	6·802
	100·000

"It is the mean result of three analyses, all of which came within a fraction one of the other. You will perceive by the quantity of iron it contains, that it would be well worth smelting if coal and limestone could be obtained in its vicinity.

"It yields about 32 per cent. of metallic iron, and I shall smelt a small piece I have remaining to see what quality of iron it is.

"The quality of hardening by exposure which the laterite possesses, is doubtless due to the silica which exists in a soluable state by potash, and to which the same property is due in all hydraulic limes. Iron also when it exists in such quantities has the power of hardening.

LIMESTONE.

The limestone, wherever it has been traced, is found resting on a thick succession of slate and sandstone strata, between it and the granite. On the Salwen it contains lead ore, like the metaliferous limestone of England and America, and it is not wholly destitute of fossils, although they are very rare. Capt. Tremenheere found a species of terebratula in the Tavoy limestone, which is characteristic of the English mountain limestone; and it may therefore be regarded as identical with the carboniferous limestone of the coal formation.

TERTIARY.

The tertiary formation is fully developed in the valleys of the Irrawaddy and Tenasserim. There are found beds of pebbles and

sand partially consolidated; plastic clay containing lignite; soft shales with impressions of recent plants; and in some places calcareous grit and gypsum, with conglomerates composed of enormous masses from the adjoining rocks.

Whether some of these belong to the tertiary or the new red sandstone formation may admit of doubt. Such products are found in both, and until they are ascertained to contain organic remains decisive of the latter, to separate them from the former is to make an arbitrary and unnecessary division.

A red sandstone from the neighborhood of Pagan is imported into the Provinces, for the use of Burmese women, to grind up their odoriferous woods upon, of which Dr. Buckland says: "It may with more probability be referred to the new red sandstone than to any other formation." The stone umbrella of the image at Amherst Point affords a specimen of this rock.

DILUVIUM.

The richest tin locality in the Province of Tavoy is at the base of the eastern mountains, where the valleys are covered with a thick bed of diluvial pebbles and boulders, eight or ten feet thick, below which no tin is found.

FOSSIL SHELLS.

The alluvial delta of the Irrawaddy extends to the vicinity of Prome, above which commences a formation corresponding to the tertiary of Europe and extending to above Pugan. Here is found a fresh water deposit containing fossil shells of a large thick species of cyrena, nearly related to a living species very abundant in the Tenasserim Provinces. In the hills opposite Prome is a "granular yellow sandy limestone, containing fragments of marine shells, and much resembling the calcaire grossier of the environs of Paris."

At Pugan, and the neighbourhood, is a dark bituminous limestone containing numerous shells identical with shells found in the London clay. Mr. Sowerby identified the following in Crawfurd's collections.

Ancillaria.	*Astarte rugata.*
Murex.	*Nucula rugosa.*
Cerithium.	*Tellina.*
Oliva.	*Teredo*, in calcareous wood.

When these shells were deposited the sea coast at Pugan must have been very similar to the present coast of the Tenasserim Provinces, where shells of the same genera lie strewed along the beach, with here and there a piece of drift wood full of the teredo.

Phayre's Mission found fossil shells of the following genera about Pugan and Prome.

Conus,	*Venus,*	*Corals.*
Valuta,	*Pecteu.*	*Crustacea.*
Turritella,	*Mytylis.*	
Astarte,	*Balanus.*	

FOSSIL BONES.

In connection with the formation in which the preceding shells are found, is one of the most remarkable deposits of fossil bones to be found on record. Our knowledge, in the matter, has scarcely been increased since Crawfurd's Embassy; and valuable discoveries remain to be made in this direction; but they will probably remain in the shade, till the country is cut up with railways; or some red-sand-stone philosopher goes to work in the quarries of Prome and Pugan.

MASTODON.

Crawfurd collected one hundred and fifty bones, belonging, as they proved on examination, to two new species of mastodon which have been named

Mastodon elephantoides.
" *latideus.*

Yule says: "From the natives we procured some good specimens of mastodon."

ELEPHANT.

Phayre's Mission procured "two specimens of elephant tusks and jaw."

RHINOCEROS.

Ten bones of the rhinoceros were found among those of the mastodon in Crawfurd's collection. Yule remarks: "Major Allen picked up a capital rhinoceros tooth."

HIPPOPOTOMUS.

Two bones, collected by Crawfurd, were recognized as belonging to the hippopotomus.

MERYCOPOTOMUS.

Yule says: "One tolerable skull of an animal allied to, if not merycopotomus," was in the collections of Phayre's Mission.

TAPIR AND HOG.

In Crawfurd's collection were single bones referred to the tapir and hog; and Yule found the "lower jaw of a tapir."

OX, DEER, AND ANTELOPE.

Twenty bones of the ox, deer and antelope, were also collected by Crawfurd; and Yule reports one specimen of deer's bones.

GAVIAL AND CROCODILE.

Fifty bones were found by Crawfurd, of the gavial and crocodile, intermingled with the bones of the preceding mamalia; which is the more remarkable, mamalia and reptiles having been heretofore found in different deposits. The gavial was said to resemble the existing gavial of the Ganges, which is also found in the rivers of Burmah. Phayre's Mission collected twenty four bones of the crocodile, and five of the gavial.

SHARK'S TEETH.

Shark's teeth, with the scales of fish, were found among Crawfurd's fossils.

FRESH WATER TORTOISES.

Bones of two species of river tortoises were found by Crawfurd, of the genera

Emys.
Trionyx.

Phayre's Mission collected thirty eight specimens of tortoise bones.

SILICIFIED WOOD.

Petrified wood is found in many localities, usually in connection with lignite, but by far the largest deposit is found on the banks of the Irrawaddy in connection with the fossil bones. It is so abundant that it is ground into a powder and used to polish the marble images of Gaudama at Sagaing. Dr. Buckland said, that some of the specimens much resembled tamarind wood; but the Burmese usually refer it to the engyen, or *Shorea robusta.* Prof. Oldham met with a piece four feet and a half long by nearly three and a half in diameter.

THERMAL SPRINGS.

The Tenasserim Provinces are well supplied with hot springs; and some of them are probably not inferior in their medicinal qualities to the fashionable Spas of Europe and America. Though their waters have never been subjected to any minute analysis, yet we know there is a great variety in the properties of different springs. They may be arranged in three different classes,—carbonated, sulphureous, and salute.

CARBONATED THERMAL SPRINGS.

The hot springs on the Attaran, according to Dr. Helfer's description, belong to the carbonated class. They are situated within two miles of the old town of Attaran, and Dr. Helfer writes: "There are ten hot springs or rather hot water ponds, of which I could only examine the nearest, as the access to the others was through deep water at 130° Farenheit. This one was a semicircular pond about fifty feet in circumference. In one place it was thirty five feet deep. The quantity of carbonic acid which the springs evolve, seems to render the neighborhood peculiary adapted to support vegetable life. The ground around the spring is strongly impregnated with iron, and the water which runs over the ochre mud has a strong styptic taste. The

springs on the Attaran approach in their composition nearest to the celebrated water of Tœplitz."

"Their medical properties would render them excellent remedies in a number of diseases; liver complaints would find a powerful remedy in them. If Amherst should be selected as a resort for invalids, the hot springs on the Attaran could easily be turned to advantage. In a direct line, they would be only four or five hours distant, and a road could be cut through the country without difficulty, so that patients could be removed there and bathe in loco."

Dr. Morton found on analysis, that the waters contain a considerable quantity of calcareous matter, and that the tufa which it deposits on the border of the springs, is a carbonate of lime. They appear to arise from the mountain limestone, and thus to hold a geological position similar to that of the hot springs of Great Britain, most of which rise from strata below the coal, and hence from, or through the limestone.

SULPHUREOUS THERMAL SPRINGS.

About four miles below Matah at the forks of the Tenasserim, and a few miles north of the latitude of Tavoy, there are hot springs highly charged with sulphuretted hydrogen gas, so readily recognized by its smell which is precisely that of the washings of a gun barrel; the odor in both instances being produced by this same gas. All the stones in the springs are of a bright brass color, produced apparently by the deposition of the sulphur; and although the virtues of these waters are hidden from man, they appear to be well known to the beasts of the forest. To judge from the tracks around in the morning, the most incongruous parties are held here every night. The delicate little tread of the chevrotain and barking deer, are seen side by side with the massive steps of the elephant and rhinoceros; and the tiger, and the leopard seem to lay aside their fierceness, and peaceably walk away satisfied with a draught of the much coveted beverage.

Dr. Helfer said these springs belonged to "the class of sulphureous mineral waters, tinged slightly with chalybeate, like the water of Brighton." Their heat above the atmosphere is not great. Mr. Bennett at a recent visit, found the thermometer to rise in the hottest spring to only 119°. They rise from the slate rocks, like the warm springs of a considerable part of Germany.

SALINE THERMAL SPRINGS.

On the margin of the granite range east of Tavoy, either near the junction of the slate and granite, or in the granite itself, is a series of the hottest springs in the Provinces. I have visited four or five in a line of fifty or sixty miles, and found them uniformly of a saline character. Around one nearly east of Tavoy, the stones are covered with an efflorescence resembling epsom or

glauber salt. Mr. Bennett found the thermometer in this spring to rise to 144°. Major McLeod visited one of the series at Palouk, and writes: "There are two spots where the springs show themselves. One immediately in the right bank of the river, and another two or three minutes walk to the northeast inland. There must be 30 or 40 bubbling up along a line of about 50 feet by 20. The hottest was 196° another 194°. No disagreeable smell or taste."

The hottest springs are at Pai, ten or fifteen miles north of those visited by Major McLeod, and according to Phillips they are hotter than any on record out of volcanic regions, with the questionable exception of three springs in China, which, "probably exceeded the temperature of the air from 70 to 120 degrees." The principal spring at Pai,—for there are several,—is in a little sandy basin in the midst of granite rocks on the margin of a cold-water stream, where it bubbles up from three or four vents, and on immersing the thermometer into one, the mercury rises to 198°, within fourteen degrees of boiling water. Its location is rather peculiar, not being in a valley like the others I have seen, but on the side of a hill more than a thousand feet above the level of the sea, and surrounded by large masses of coarse grained granite rocks, which seem to have been detached from the summit above.

There is a hot saline spring at Toungoo some twenty miles east of the city, in the granite mountains, two or three thousand feet above the plains; but the heat is not equal to those in the Tenasserim Provinces.

Mineralogy.

Few countries are so rich in minerals as Burmah, in none perhaps do those riches lie so dormant. Mergui has tin equal to that in Cornwall; in Tavoy iron could be made equal to the Swedish; the copper, and antimony of Maulmain are good, the gold of Shwaygyen is not inferior to the Australian; and the lead of the Toungoo mountains has no superior in the hills of Missouri. In Burmah Proper are the petroleum wells, the amber mines, the precious serpentine, the Bau-dwen silver, and the kyat-pyen or Capelan, mines of precious stones; none of which are surpassed in the world.

In the modern classification of minerals they are made dependent on their chemical constituents. Hence we have the hydrogen group, the carbon group, and the oxygen group. In a work like the present, intended for general readers, this arrangement can be followed conveniently only in part.

METALS.

Gold, platina, quicksilver, silver, copper, lead, iron, manganese, and tin, in their native state, are embraced in the hydrogen group.

GOLD.

Though not quite so abundant as in California, yet there is perhaps, no mineral except iron, more universally diffused over the Tenasserim Provinces, than gold. It is found in the lead near their northern boundary, it is washed from the sands of the Tenasserim on the south, and the streams that tumble from the high granite mountains' between Yay and Monmagon, are constantly 'rolling down their golden sands' into the valleys around. It has been collected, in small quantities in the tin deposits east of Tavoy. Mr. O'Riley found gold in the tin from Henzai, half a degree south of Yai, and "almost all the creeks," says Dr. Helfer, "coming from the eastern or Siamese side of the Tenasserim river, contain gold. The greatest quantity is obtained close to the old town of Tenasserim, where people wash it, and obtain sometimes one anna's weight each, during the rainy season."

The richest deposit of gold in the Provinces, is, however, at the head waters of Tavoy river, where it is found in an alluvial or diluvial formation of red earth and pebbles, very similar to that in which gold is found in North Carolina. On the east side of the mountains at the base of which this deposit rests, "the Siamese Government," says Dr. Morton, "have several hundred

men permanently occupied, each of whom it is said, is expected to deliver one tickal (about one rupee and a quarter) weight of gold dust per annum. The Burmese authorities in former times also employed people in this work at the streams on our side of the boundary, but though the quantity then procured was greater than at present, this does not appear to have ever been considerable. The method adopted is that of digging a longitudinal excavation in the sand, and washing from time to time the deposit found therein."

Three or four years ago, the head native officer in Tavoy made an experiment at "the diggings" on Tavoy river, and by the washings of nine days, obtained gold to the value of about ten rupees. This gold appears to contain a considerable proportion of silver. Mr. O'Riley says that the Assay Master at the Mint in Calcutta reported it :

Gold,	87.895
Silver,	9.241
Base metal,	2.864
	100.000

Pegu is still more famous for its gold than Tenasserim, and that gold was more abundant anciently than it is at present, is manifest from the name *Suvanna bumamie*, or *Suverna*, or *Soupheir*, or *Ophir*, by which it was known to the ancients ; signifying land of gold. In modern times, we have Shwaygyen "gold siftings," and Mr. Oldham reporting on the gold of this region, furnished by Major Berdmore, wrote : "The specimens of gold forwarded consist of varieties ranging from dust of the finest kind that could be mechanically separated to small nuggets. These very well illustrate the mode of occurrence of the gold in its native state imbedded in quartz, while the other specimens show that the general form in which it is found, in these washings, is in small rounded flakes, or flattened plates of various sizes. This gold is of considerable purity. One specimen was examined with some care, and yielded in one hundred parts, ninety two of gold, and eight of silver. This is sufficient to show that the Shwaygyen gold is fully equal in value to the average quality of Australian gold." It further appeared that all the gold is in the surface soil, as at Tavoy, and in North Carolina. The earth at nine feet deep, Mr. Oldham said, contained no gold.

Mr. Yule's report, Mr. Oldham states, that gold is found in many streams above Ava ; and estimates that eighty or one hundred viss are found in the country annually, but is of opinion that the principal part of the gold in Burmah is imported from China.

ဧရှ။ ထိုး. ထူ၊ ထဲ။ ထဉ်။ တၢဉ် *khau.*

PLATINA.

Platina is found in the neighborhood of Ava, but we know nothing of it beyond what Col Burney wrote a quarter of a century ago. He remarks: "I find that a good deal of the platina ore is brought from some mountain torrents or small streams, which fall into the *Kyendween* river from the westward, near a town called *Kanree;* and it is collected in a very curious manner, as Mr. Lane is informed, although he hesitates to believe the fact. The horns of a species of wild cow in this country called *Tsain*, perhaps the same as the *Nylgao* of India, have a velvet coat before the animal reaches the age of two or three years; a number of these horns are taken and fixed in the beds of the small streams, and at the close of the rainy season, when the water subsides, a cloth is put down over each horn separately; and the horns, and cloth, as well as a portion of the sand around it, are taken up together. The horns appear to collect around them a good deal of gold dust, which the streams have washed down, and with this dust grains of platina are found mixed.

The Burmese look chiefly for the gold dust, separating and bringing that alone generally to Ava; and although Mr. Lane has often urged the men who are engaged in this trade to bring at once the whole of what they take up with the horns, he has not yet been able to persuade them to do so. These horns sell sometimes for 12 or 13 ticals a piece, and deer's horns are sometimes used instead of them.

The Burmese call platina, *Sheenthan;* much of this ore is also found with the gold dust collected among the small streams which fall into the *Irrawaddy*, to the northward, in the direction of Banman."

MERCURY.

Quicksilver is imported from China, but its Burmese name is evidently derived from the Pali, which indicates that the article was first brought from Hindustan. The native Pali lexicographer says: "It is called Parada, because it has the power to turn all iron, *sabba lohan** to gold."

ဖဒါး။ ပရိဒ. ပဒါ။ ပဒး။

CINNABAR.

Probably most of the quicksilver, found in the bazars, is prepared from cinnabar. M. Hanislas Julien, in an article that he translated from the Chinese, says: "Cinnabar of the first quality comes from *Chinpe*, now Mayang, and from Sitchonan.

The cinnabar of the first quality is found by digging the ground at a depth of 70 feet. The presence of the mineral is indicated by the appearance of small white granular stones. The largest pieces are of the size of an egg. The second sort does

*ပါရယတိသတ္ထောတိသဗ္ဗလောဟံ ကဉ္စနံ ကာတုမိတိပါရဒေါ။

not enter into any pharmaceutic preparation. It is ground up and used by the painters and colorists in the same manner as that which is prepared directly from mercury. Its matrix does not always appear under the form of white stones, but has sometimes a mixture of blue and yellow. It is found about 20 feet below the other. Sometimes it is met with in a stratified sandy soil, and then the stony and sandy gangue is easily separated. This kind of cinnabar is found in abundance at *Koucitchou Ssein*, at *Thoungjin*, &c. also in great quantities at *Changtcheou*, and at *Tsintcheou*.

The cavities from which the second sort is collected, have a whitish aspect. When recently extracted, it may be separated without the necessity of previous pounding. This cinnabar, on first coming from the mine, has a brilliant surface, which soon tarnishes on contact with the air.

To prepare the vermilion, they take the cinnabar, and pound it in an iron mortar shaped like a boat, with a stone pestle of a flattened spherical form, and placed at the end of a vertical lever moved by four men, by means of a bar which passes through it. The powder is thrown into clean water, and left to soak for three days and three nights. One part falls to the bottom of the vessel, the other, lighter, floats on the surface: this is removed with a skimming ladle and placed in a second vessel. It is then called *Eult chou* or *second red*. The cinnabar which was deposited in the first vessel, is taken out, dried in the sun, and is then called *Theout chou* or *first red*.

To obtain quicksilver from the ores, either the second quality, inferior cinnabar, white and newly extracted, or the deposit, or the skum separated on the surface of the water, are employed.

Thirty pounds of one of the above ores is put into an iron vessel, with a convex head of the same metal, having a small opening in its centre: the two are carefully luted together, and a curved iron tube fitted hermetically into the aperture at top, with hemp and luting.

Thirty pounds of charcoal are necessary for the distillation: when the retort becomes hot, one end of the iron tube is plunged into cold water, so that the vapor which rises from the metal pot distils over through the tube, and condenses in the water. In five hours the whole of the cinnabar is transformed into mercury, which is taken out of the water after having been suffered to repose for 24 hours.

Cinnabar is used extensively by the native doctors to salivate their patients, which they do most effectually by causing them to inhale its fumes. The Burmese name of vermilion, prepared cinnabar, coincides with the Sanscrit, while the native mineral they denominate *hen-tha-pa-ta-yaing*, or "wild cinnabar."

Sulphuret of mercury.

ဟသ်ပဒါး၊ ဟသ်ပဒါးရိုင်း၊ ဟံဝပဒါ၊ (*Sanscrit.*)

SILVER.

In the lead ore of the Salwen valley, which Dr. Morton sent Professor Mitchell for analysis, "the quantity of silver appeared to be considerable." Mr. O'Riley had a specimen of an ore of silver, antimony, copper, and sulphur brought him, which produced thirty-five per cent. of silver; and the Tavoy gold, it would appear, contains nearly ten per cent., and the Shwaygyen gold eight of the same metal; but at "Baudwen," says Mr. Oldham, "on the north east of Ava, on the borders of China, is supposed to be one of the most extensive mines in the world. Forty viss are said to be found in a day."

Dr. Brandis met with silver, in small quantities in several localities in the valley of the Salwen.

ငွေ။ စွဲ. စွဲ။ ဟိ။ ရိုး။ ကျွ။
ဘော်။ *pure silver.*
မောရဂိဝါငွေစါးကျောက်။ *silver.*

COPPER.

Mr. O'Riley states, "that specimens of copper ore have been brought from several islands of the Mergui Archipelago, and all obtained appears to be of the same character, viz: the grey copper ore, containing from forty to fifty parts of the metal in combination with antimony, iron, and sulphur." He has also "traced the existence of the sulphuret of copper" on the Attaran. Mr. Oldham, reporting on specimens from the Tenasserim Provinces, furnished by Major Bogle, says that one "is a fine specimen of finely crystalline copper pyrites imbedded in quartz, parts of a vein which, if any size, would be a valuable source of this ore. The ore is good, would be very easily dressed, and might yield, even with inferior management, from 12 to 15 per cent. of metal." Other specimens he said were "grey copper ore in quartz, partially decomposed into the green carbonate. This also is a good ore of copper, if abundant."

ကျေးနီ။ ထိးဝိုး. တိုင်ဂိုး။ ကြီလုံး၊ တွလုံး။
မော်ရဂိဝါကျေးနီစားကျောက်။ *copper ore.*

MALACHITE.

I have had fine specimens of green malachite, or green carbonate of copper from the sources of the Ataran, and also from some locality on the east bank of the Salwen beyond the British boundary. "Quartzly malachite" was also sent by Col. Burney from Ava, which furnished eighteen per cent of copper. Green and blue malachite, Capt. Yule says, are found near Sagain, which yields five per cent of metal. I have seen blue malachite, blue carbonate of copper, from Cheduba on the Aracan coast;

Carbonate of copper.

ဘာလဒုတ္တာ။

BLUE VITRIOL.

Blue vitriol, or blue stone, is seen in all the bazars, but does not seem to be a production of the country.

Sulphate of copper.

ရဏ္ဍာ။

LEAD.

Prof. Oldham remarked on specimens sent from the Tenasserim Provinces: "Inferior ores of lead of the same kind," galena or sulphuret of lead, "are largely worked in Great Britain." Dr. Morton sent a specimen of galena, from the Salwen, to England for analysis, which was reported a very valuable mineral, and "destined to make a fortune for some one." Prof. Mitchell in his certificate that he furnished Dr. Morton of the analysis says: "It contains lead, sulphur, silver, gold (traces) lime, magnesia, iron, silica.

It is a sulphuret of lead or galena. The quantity of lead and silver appears to be considerable, but there was not sufficient of the mineral to estimate either. The ore is seen in the limestone, precisely as galena is found in the limestone of the Mississippi, one of the richest known deposits of lead in the world.

Mr. Oldham says that lead is produced in several places in Burmah, but worked to a very limited extent; that most of what is in use is brought from the Shan States.

ခဲပုပ်။ ခဲမပုပ်။ ရှုဝဲ၊ ပှင်ဦး၊ ပြင်ဗျင်။ ပါဝံ။ ပါယူ။

MINIUM.

Manufactured minium is seen in the bazars, but it is not made in the country.

Red oxide of lead.

ဆုန်း။

ZINC.

Dr. Helfer reported the existence of zinc on the Mergui Islands, but Mr. Oldham says: "all the zinc in Burmah is imported from Europe or China. That from China comes in the shape of small cups."

သွပ်။

IRON.

There is a large variety of ores of iron in the Tenasserim Provinces, some of which are uncommonly rich in metal.

COMMON PYRITES.

Iron pyrites are very abundant. In some places they contain arsenic, and constitute arsenical sulphuret of iron. The Bur-

mese names, though usually applied to iron, are generic, and might be applied to any pyrites.

Sulphuret of iron.

ပဟာန်းကျောက်။

ပဟာန်းရွှေဝါ။ *yellow pyrites.*

ကျောက်သြဇာ။ *globular masses containing pyrites in the centre.*

ကျောက်တမင်ခေါက်။

ပဟာန်းကြက်ခြေ။ *small iron pyrites.*

LOADSTONE.

About three miles north-west of Tavoy, is a hill upwards of a hundred feet high which appears to consist almost wholly of magnetic oxide of iron. A large rock near its summit is highly magnetic, and constitutes a magnificent loadstone.

Dr. Ure, to whom Mr. Blundell sent specimens of this ore, reported :

" 1st. Compact magnetic iron ore.—Tavoy, No. 1.

" Colour iron black with a metallic glimmer, fracture fine grained, possesses magnetic polarity, specific gravity 3.511, compared to water = 1,000.

"It yields in analysis the following constituents :

Peroxide of iron...	86.5 equivalent to 60·55 metal.
Silica with a trace of phosphate of lime,...	3·5
Water,...	10·0
	100·0

It contains no manganese or titanium,

"2nd. Compact magnetic iron ore.—Tavoy, No. 4.

External and magnetic characters as above.

Specific gravity, 3·462.

It yields in analysis :

Peroxide of iron...	86·0 equal to 60·2 metal.
Silica with a trace of phosphate of lime,...	0·6
Water,..	13.1
	100·0

It contains neither manganese nor titanium.

" 3rd. Tavoy ore, No. 2.—External characters as above.

Specific gravity,.. .. .. 4·369.

" 4th. Tavoy ore, No. 3.—Characters as above, as to aspect and magnetism.

Specific gravity,.. .. .. 4·100.

" The two latter samples are even richer than the former, as is evinced by the specific gravity, but they are all quite rich enough and pure enough for making the best quality of bar-iron and steel.

"I instituted two elaborate sets of experiments in search of titanium, which when present in any notable quantity in iron ores, renders the iron made from them red-short, but I found none in the above ores."

Magnetic iron sand is found in connection with gold, both in the Tenasserim Provinces and at Shwaygyen. Mr. Oldham says that it is " a mineral which is so constantly an accompaniment of gold, as to have been frequently called by miners, the mother of gold."

Octahedral iron ore.
Magnetic oxide of iron.

သံလိုက်ကျောက်။ ကျောက်သံစာဒ။

SPECULAR OXIDE OF IRON.

There is a very rich ore of this species on one of the branches of Palouk river. The natives think it an ore of silver, and call it " the silver stone."

ငွေကျောက်။ လိုးစွဲ. လၢၵ်စွဲ။

BROWN OXIDE OF IRON.

Iron ore is very abundant near Mergui, and according to Dr. Ure is brown hematite. Of the specimens that Mr. Blundell sent him, he wrote:

" The three samples of iron ores from Mergui, are brown hematites, and from their density, will afford good iron in the smelting furnace.

Mergui iron stone No.		1	specific gravity	3.37
Ditto.	Ditto.	2	Ditto.	3.18
Ditto.	Ditto.	3	Ditto.	3.32"

သံကျောက်။

RED OCHRE.

There is a fine bank of red ochre near Kallioung on Tavoy river. It might perhaps, be turned to account in a commercial speculation. Comstock says: " It is sometimes employed as a pigment, under the name of Indian red; but more commonly, it is believed, under that of Spanish brown."

Ochery red oxide of iron.

မြေနီ။ ဂၢ့ခိၵဝိၤ. ဟိၵ်ခိၵ်ဝိၤ။

CLAY IRON STONE.

Several varieties of clay iron stone are seen in the Tenasserim Provinces, among which, the nodular variety is common.

Argillaceous oxide of iron.

သံကျောက်။

PISIFORM OXIDE OF IRON.

Small balls composed of red oxide of iron, showing a stellate structure, when they are fractured, are found in some parts of province Amherst ; and they have been sent from the neighbourhood of Ava.

BOG IRON ORE.

Bog iron ore is very abundant in the Provinces, and in many places is quite rich in metal. It occasionally contains vegetable petrefactions, some of which have the form of branches of trees, but are wholly composed of iron ore, and which the Burmese call

ဖြောက်သို့ကျောက်။

COPPERAS.

Copperas, or sulphate of iron, is often formed from the decomposition of pyrites or sulphuret of iron, forming an efflorescence on the rock that contains them.

Sulphate of iron.

ထိလဆွဲ။

BURMESE IRON.

"The principal places," says Yule, "where iron is worked in Burmah, are Paopan about fifteen miles east of Pugan, and Maedoo north east of Shen-bo-myu."

Iron.

သံ၊ ထး။ ထးသဲ့။

TIN.

Tin is abundant in the Tenasserim Provinces, commencing from the mountains in which Tavoy and Henzai rivers have their rise, the northern limit of tin in the Provinces, to the southern boundary of Mergui, Pakchan river. The richest locality in the province of Tavoy, is nearly opposite the city of Tavoy on the eastern side of the mountains.

That large quantities of tin must have been found in Tavoy three hundred years ago, we have evidence in an incidental remark from Mr. Ralph Fitch ; who, says Mr. Hough in the Maulmain Chronicle, "travelled in this part of the world in about the year 1586, or 1587." He says : "I went from Pegu to Malacca, passing many of the sea ports of Pegu, as Martaban, the Island of Tavi, whence all India is supplied with tin, Tenasserim, the island of Junkselon, and many others."

Capt. Tremenheere found the richest deposit of tin in the Provinces, at Kahan on Mergui Island, about eleven miles above the the town, and near the Tenasserim river. "Kahan itself," he writes, "is the highest portion of a low ridge of hills, not more than 200 feet above the level of the river : it is composed of a soft friable white sandstone rock, the upper portions of which are decomposed and irregular. The surface gravel does not contain tin.

It is found in the crystallized form interspersed in decomposed granite, forming a vein about three feet wide, which is enclosed by the white sandstone rock, and dips down at a high angle with the horizon.

"Large scales of chlorite occur with it, which, as they are generally found where the tin is most abundant, is called by the natives 'the mother of tin.' The face of the hill is in one spot scattered over with these, which appear to have been brought down from the vein with other matter from which the tin has been separated by the usual mode of washing. It will be noticed, that the granite is completely decomposed, and that the crystal would be easily separated by washing. No tin has been raised here since the country came into our possession, but the locality has been known. It was worked during the Burmese rule, and valued as supplying the richest ore of tin. A Burman residing near the spot, pointed out the place where his operations had ceased. He had followed the direction of the vein alluded to, as well as he was able, and had driven a gallery under ground in an inclined direction upwards, till the bank above fell in, when the mine was abandoned. He stated that he had procured considerable quantities of tin daily, and that he often found it in large masses mixed with yellow ground. Arriving at the spot where his work had terminated, I set people to excavate and find, if possible, the vein which had been described. It was reached after about two hours' digging, at the depth of five feet from the surface of the cut in the hill in which we stood. In about a quarter of an hour, a few baskets of the decomposed granite were removed down the hill, from which an amount of the crystallized peroxide of tin, equal to 63·176 grains of pure tin, were collected.

"The crystallized form in which the ore is here found renders its separation extremely easy, and the whole processes of stamping and dressing, which in England are tedious and expensive operations, can thus be dispensed with. No arsenic or sulphur being mixed with the ore, it need not be roasted before it is placed in the furnace."

This ore, he adds, as quoted by Mr. O'Riley, "contains specimens of macled crystals, which in weight and size surpass any thing I have ever seen in Cornwall, or in cabinet specimens. Specimens have been extracted of great weight and richness, consisting of large macled crystals of tin on quartz, and contain more tin in proportion to the bulk than any specimens I have before seen. The largest, which measured about fourteen inches square by twelve deep, was so heavy, as to require some exertion to hold it steadily in both hands."

In another report, Captain Tremenheere writes: "With the view of ascertaining its value in the home market, I transmitted a box of average samples of the ore, to a smelting establishment in Cornwall, (Messrs. Bolitho & Co.) having extensive connection with the tin mines of that country. In April 1843, Mr. Thomas

Bolitho informed me that: 'The samples of once-washed ore produce about 70 per cent. of tin, and the twice-washed yields nearly 75 per cent. The metal is very good, being almost free from alloy; some of the samples which have been sent to me from the Malayan Peninsula contain titanium. The ore appears to separate from the matrix very easily.'

Tin is found in the granite mountains east of Toungoo, but beyond the water shed, in the valley of the Salwen. A large Karen village near the principal locality is constantly employed, during the rains, in washing the detritus of the granite in which the mineral is found, and in smelting the ore, which is sold to the Shans in small pigs of a viss each, and which circulate in the neighborhood instead of rupees.

ခဲမဲး ခဲမဲးခြဲ ခြ. ၁ဆဲ. ပွဲ. ပွဲဝါ. ဝါဆိ.
ကြဲးခြဲ *any mixed metal resembling tin—as tin and zinc.*
သံခြဲ. *tinned iron plates.*

MANGANESE.

Col. Burney sent black oxide of manganese from Ava. Captain Tremenheere has given a full report on the manganese of Mergui, on the Tenasserim; and I have seen specimens of manganese mixed with iron from one of the islands south of Mergui.

Captain Tremenheere wrote: "During my stay at the Tenasserim coal basin, a piece of manganese ore, (black wad,) of good quality, was brought to me by a Karen, who stated, that it had been found accidentally in the bank of a stream called the Thuggoo, which enters the Great Tenasserim, seventeen miles below the coal site. Subsequently, several other pieces of the same ore were brought to Mr. T. A. Corbin, Assistant to the Commissioner from the Therabuen river, five miles above the Thuggoo, and from an intermediate spot, the locality of which had been previously known, and had been, I believe, originally pointed out by Lieutenant Glover of the Madras Army.

"In proceeding down the river, I visited these spots, and found at each, that a valuable bed of manganese ore existed close to the surface of the country. It had been apparently cut through by the action of the stream and river before mentioned, leaving a section of the bed of ore in their banks, covered only by the debris of the banks themselves. Large quantities might have been carried away, but a few hand specimens only were taken, which sufficiently shew the nature of the deposit, and are fair samples of what might be easily collected.

"Of the extent of these manganese beds it is difficult to pronounce. The face of the country in which they are situated is flat, thickly overspread with soil, and with the densest jungle. It is not, so far as I could perceive, intersected by many streams which would afford the means of tracing the mineral deposit. The great Tenasserim river has passed through the manganese

bed in one spot, 2½ miles removed from two other points at which it occurs to the north and south, at both of which it is likewise discovered near the surface by the action of the streams Thuggoo and Therabuen. The probability therefore, is, that it is an horizontal deposit covering many square miles. But without indulging in conjecture, there is sufficient at the localities referred to, to indicate large quantities of maganese ore which could be collected by penetrating through the soil lying above it, and immediately near the spots in which it is now exposed to the day.

"It occurs in the form of the black oxide, and is the manganese of commerce. It is largely consumed in Europe in the preparation of bleaching compounds, and when pure, is valuable to the manufacturer of glass.

"The soft black ore, No. 1, is a hydrate of the peroxide of manganese, known under the name of wad. It contains of water two equivalents, or 29 per cent.

Iron, 1.96 grains by analysis; its specific gravity is 1.47. The specific gravity of the grey peroxide, No. 4, is 1.46."

TUNGSTEN.

The tugstate of iron, or wolfram sand, much resembles tin, and it is found in most neighborhoods where that ore is obtained, and for which it is often mistaken. One of the Assistant Commissioners at Mergui a few years ago, reported several valuable deposits of tin, not before known, and he raised furnaces on the ground to smelt the ore; but although he tried hard, and increased the heat to the highest point he was capable of doing; still the ore remained refractory, and would not turn into tin. He attributed the fault to his furnaces, and came away with large specimens of his tin ore, which proved on examination to be tungsten, or wolfram sand. A magnet will distinguish the two ores at once, for the iron in the tungstate of iron is attracted by the magnet, while the tin is not.

ခဲမသေ။

MOLYBDENA.

Mr. Piddington, in analyzing the ores of antimony, found "in one instance a trace of molybdena."

ARSENIC GROUP.

Bismuth, antimony, arsenic, and sulphur, constitute the arsenic group.

BISMUTH.

Mr. Piddington, the Mineralogical Curator of the Asiatic Society's Museum, mentions in his reports that he found bismuth in one of the ores sent him from "the antimony mines" near Maulmain; and it is found in connection with silver in Burmah.

ကျွတ်၊ တော်နှင်းကျွတ်၊

ANTIMONY.

The sulphuret of antimony, appears to be a very abundant mineral in Province Amherst. It is reported as being often met with on the mountains, that bound the valley of the Thoungyeen. Mr. O'Riley found it at the sources of the Ataran, and large quantities of the ore have been dug up in the neighborhood of Maulmain; but there was no demand for it in Calcutta whither it was sent, and operations have been suspended.

Mr. Piddington made the following report on specimens of the ore that were sent him: "We received from Messrs. Fowle and Lonsdale of Maulmain, a box containing upwards of thirty specimens of ores from the antimony mines near that place, with a request that they might be examined, their desire being of course to ascertain carefully and certainly, if they contained any, and what, proportion of the precious metals. One of the ores sent up was indeed a 'supposed antimonial silver.'

"Now, in complicated ores of this description, this sort of examination requires great care, time, and often repeated analysis, before a negative can safely be pronounced from a small specimen, to assure the miner or smelter who works on a large scale that nothing of value exists in his ores, and these references have thus occupied a very considerable portion of time and labor, and as is often the case in such investigations, have proved wholly unfruitful. Antimony, iron, arsenic, and sulphur with bismuth, and in one instance a trace of molybdena being all which can be discovered in them. The results have been sent to Messrs. Brightman, but are not worth detailing or printing.

"I have suggested, however, to these gentlemen that they may find it well worth their while to sink a shaft 'for a change of ores.' As I now understand their operations, they seem to be occupied with what one might call mere surface-digging rather than mining, and the pronouncing, as we must now do, that these ores contain nothing of value, is not to be understood as saying that the locality contains nothing, but merely that the ores *at the surface* have not been found valuable; which in Cornwall, and I think in Germany, is often thought to be a favorable indication."

တေလေကြာကိ။

BOURNONITE.

With the ores of antimony which Mr. Oldham received from Maulmain, were specimens of "the rarer but less valuable mineral Bournonite."

ARSENIC.

Dr. Helfer reported the existence of ores of arsenic on the Mergui Islands. Mr. Piddington found it in the antimony ores, and Professor Mitchell also found arsenic in the lead ore that he analyzed.

OXIDE OF ARSENIC.

This is the common arsenic of the shops, and is imported from Bengal.

စိန်။ စိန်ဖြူ။ စုး. စံဂ်။

RED ORPIMENT.

Red orpiment, or realger, is found in the bazars, brought, it is said, from China.

Red sulphuret of arsenic.

မြင်းသီလာ။

YELLOW ORPIMENT.

Yellow orpiment is also imported from China, but its Pali name *ha-rie-ta-la*, identical with its common Hindu name *hurtal*, proves that it was first brought from Hindustan.

Yellow sulphuret of arsenic.

ဆေးဒန်း။ ဆေးဒန်းရွှေဝါ။ ဟာရိတာလ။ (*Pali.*)

SULPHUR.

Sulphur exists in the ores that are found in the forms of sulphurets; as the sulphuret of iron, the sulphuret of antimony, the sulphuret of lead, and the sulphuret of copper; and Mr. Oldham found patches of coaly matter, covered with a thick efflorescence of sulphur in the neighbourhood of the petroleum wells.

ကန်။ ခီတ၂.

ကး။ ကံတာဂ်။

CARBON GROUP.

The diamond, coal, graphite, and Tremenheerite belong to the carbon group.

DIAMOND.

Although the diamond is not found in Burmah, yet it forms one of the nine gems, which, worn together in a ring, are supposed to protect the wearer from evil. They are

နဝရတ်ကျီးနှစ်ကျီး	စိန်။	*diamond,*
	မျှး	*emerald,*
	သဒါ။	*coral,*
	နီလာ။	*sapphire,*
	ဥုသဖရား။	*topaz,*
	ဂေါ်မုတ်။	*pyrope,*
	ကျောင်။	*cat's-eye,*
	ဝုလဲ။	*pearl,*
	ပတ္တများ။	*ruby.*

MINERAL COAL.

The Mergui coal is regarded by the Coal Committee as true mineral coal, but of inferior quality. A similar coal is found on the banks of the Tenasserim north of the latitude of Tavoy; but Captain Tremenheere regards both as superior varieties of lignite, and it is believed correctly.

"Lignite or brown coal," says Hitchcock, "appears to be peat which has long been buried in the earth, and has undergone certain chemical changes, whereby bitumen has been produced. Bituminous coal is probably the same substance, which has been longer buried in the earth, and has undergone still further changes." The coal of the great Tenasserim valley appears to have been so long buried in the earth, that the best parts of it are better than ordinary lignite and equal to the inferior portions of bituminous coal, which is true of beds of lignite in other parts of the world.

On the banks of the little Tenasserim, coal of a superior quality is said to exist, and in that direction further examination ought to be made. Of that section of country I have no knowledge from personal observation, but the Coal Committee say: "Eighty miles from Mergui inexhaustible beds of coal of an uniformly good quality occur on the Thian Khan, one of the main branches of the Little Tenasserim. The various beds appear to be what is called cannel coal, remarkable for consisting of upwards of 50 per cent. of bitumen, which, to use the words of Mr. James Princep, shews it to be a superior blazing material, which is the main point in getting up steam."

Coal has also been found on the banks of the Lenhea river, south of Mergui; but of this nothing is known. It is a field for examination.

I have seen specimens of coal, as good as the Mergui coal, found in the vicinity of Toungoo; but I regard it as only a better kind of lignite. Similar beds have been found on the Irrawaddy, and a true bituminous coal was found in the vicinity of Ava; but "no coal of the best quality," says Yule, appears to have been found yet in Burmah.

ကျောက်မီးသွေး။ လိုးဒွၢခီး. လိုးဒွၢ. လၢၢ်ဒွဲ့ဂိလး။

LIGNITE.

Lignite, or brown coal, has been found in several localities. On the banks of a small tributary of the Tenasserim, in about ten miles of latitude north of Tavoy, trunks of trees changed to lignite may be seen in the stiff clay, and near them the trunks of other trees completely silicified, and turned to stone.

The coal Committee also reported on a specimen of coal from Maulmain as "Cannel coal," but Mr. O'Riley who visited the locality whence it was said to have been brought, says that if found in that neighborhood, it must be lignite.

Dr. Morton recently furnished me with specimens of lignite collected by the commander of the surveying vessel on the coast, below Amherst. As the shore there for many miles is covered with laterite, it is probably found in that rock. Lignite occurs in laterite on the other coast.

Mr. O'Riley found lignite near the head waters of the Ataran. He says: "Approaching the head waters of the Ataran river where the strata are considerably elevated, with the dip at an angle of 38° two separate lines of lignite occur in a coarse sandstone conglomerate with shale and a semi-indurated blue clay containing limestone pebbles. This lignite is highly pyritous, its decomposition affording a copious deposit of sulphate of iron which covers the exposed surface with a dirty-colored efflorescence. Some of the pieces taken from the deposit retain their original characteristics, do not fracture, and may be sawn through in sections across the grain, the same as wood imperfectly carbonized. Other deposits of wood less charged than the foregoing are found in the banks of the rivers Dahgyaine and Gyaine, some 20 or 30 miles to the north-east of Maulmain, covered with the same blue clay as that already noticed, but none possess any useful quality as a combustible material."

ANTHRACITE.

No indications of bituminous coal have been found in Maulmain Province, but there is reason to believe that anthracite exists under the town of Maulmain itself. In digging a well on one of the Baptist Mission compounds, beneath several alternating beds of sandstone and slate, or shale, more than twenty feet below the surface, beds of carbonaceous matter were reached. One thin bed contained Tremenheerite.

Another thin stratum consisted principally of sand and carbonaceous matter, and similar beds are said to accompany the anthracite of America. Below this, is a stratum of shale, and carbon containing fossil plants. One was decidedly an impression of a part of a leaf belonging to the palm tribe; and others unquestionably fern leaves such as indicate the anthracite coal formation in America. One of the ferns, and apparently the most numerous one, cannot be distinguished from specimens of *Neuropteris Scheuchzeri* from the anthracite coal mines of Rhode Island, and Massachussetts, in my possession; and others bare a strong resemblance to *Neuropteris* and *Odontopteris* of the American anthracite coal fields, that have been figured, but not described.

These are the only impressions of ferns that have ever been discovered in the country; but from the bottom of a well deepened last dry season on the margin of the north west corner of Mr. Paterson's compound, an abundance of Tremenheerite was brought up, and it is very probable that the fossiliferous strata

are below it; though not the same as those on my compound, the inclination of the strata showing that they are above them.

TREMENHEERITE.

According to the analysis of Mr. Piddington, Curator of the Museum of Economic Geology in Calcutta, the Tenasserim Provinces contain a new carbonaceous mineral, which he has named Tremenheerite. In his report, he writes:

"This substance was sent to the Museum from Tenasserim by Captain Tremenheere, as black wad, but it contains no trace of manganese.

Prof. Dana says: "Tremenheerite appears to be an impure variety of graphite; or it is between coal and graphite."

BLACK LEAD.

Among the ores sent from the Tenasserim Provinces by Col. Bogle was, says Mr. Oldham, "a good though not large specimen of graphite, black lead, and if there be any quantity of this ore it is very valuable; the source of supply in England being nearly exhausted."

ORGANIC COMPOUNDS.

Petroleum and amber are now found at the end of our treatises on mineralogy classed as organic compounds; but they are placed here, as in nature, close to the coals.

PETROLEUM.

There were supposed to be five hundred productive petroleum wells on the Irrawaddy, till they were visited by Mr. Oldham, who reports one hundred and thirty wells only as producing petroleum. The best furnish four hundred viss a day, while others not more than sixty. The wells are from two hundred and fifty to three hundred and fifty feet deep; and the petroleum when drawn up is 10° warmer than the temperature of the air.

ရေနံ။ ကျွဲတံ၄.. ဂျခိၵ၄. ထံနၢ။ ကျွတံး။

AMBER.

Burmah has long been famed for its amber mines, which are near the sources of the Kyen-dwen, where the district is called Payendwen, from *payen* ember, and *dwen* a pit. The amber is found in connection with lignite "in a dark carbonaceous earth covered with red clay;" but the mines, like the famous diamond mines of Golconda, appear to be fast approaching exhaustion. There were only about a dozen men employed at them when visited by Dr. Griffith in 1837.

Prof. Oldham found "amber-looking resinous matter," in the coal bed above Ava.

ပရင်း။

ROCK SALT GROUP.

Rock salt and sal ammoniac are embraced in the rock salt group.

SALT.

Most of the salt used by the Red Karens is rock salt, imported from the north by the Shans. There are also salt lakes north of Ava from which salt is made.

Chloride of sodium.
Muriate of soda.

ဆား။ သိန္ဓောဆား။ ထံ၇လ၂လိး.
အံဝဉ်ဝံဉ်တိဉ်။ အံဝဉ်လ၇၊

SAL AMMONIAC.

Sal ammoniac is not known to be a product of Burmah, but it is found in all the native bazars.

Muriate of ammonia.

ဇဝက်သား။ စဝဲဃ၂. စဝဲဒဉ်။

SPINELLE GROUP.

Spinelle and corundum with its varieties belong to the Spinelle group.

SPINELLE RUBY.

By far the larger proportion of the rubies offered for sale, are, it is believed, spinelle rubies. I have a small specimen which every native, who has seen it, regards as one of the best kind of rubies, or red sapphire, but its natural crystalline form is easily recognised, as a regular octahedron; while that of the oriental ruby is a six sided figure, or some of its modifications. They are seen of all shades. Blood red, the proper spinelle ruby; rose red, the balas ruby, orange red, or rubicelle; and violet colored or almandine ruby. It is no easy task to distinguish, accurately, the true character of the different stones offered for sale as rubies. Both Europeans and natives often make great mistakes. An English officer bought a "ruby" in Maulmain a few years ago for fifteen rupees; his friend bought one for five rupees; and the rubies were thought to be of nearly equal value; but on walking into a jeweler's shop in Calcutta, a year or two afterwards, the jeweler offered *four hundred and fifty rupees* for the one, but refused to give two rupees for the other, characterizing it as "a worthless garnet."

ကျောက်နီ။ ပတ္တမြား။
စီးပြူကုံး။ *the inferior varieties.*

CEYLANITE.

The dark blue, or blackish varieties of spinelle, called Ceylantie or pleonaste, are often offered for sale by the Shans under the same name as the sapphire.

နိုလာ။

AVA GEM—SAND.

Gem sand from the neighborhood of Ava, is sometimes one of the Shan articles of merchandize. It consists of small fragments of nearly all the precious stones found in the country, but garnet, beryl, and spinelle are its principal constituents, more especially the last, which seems to constitute more than three fourths of the whole mass. A single handful will contain specimens of every shade, black, blue, violet, scarlet, rose, orange, amber yellow, wine yellow, brown, andwhite. Many retain their original crystaline forms, some have the fundamental form of the species, a perfect octahedron; but many others have some of the secondary forms, among which it is not uncommon to see twin crystals with three reëntering angles, formed by two segments of the tetrahedron truncated on the angles, and joined together by their bases.

CORUNDUM.

"Corundun includes sapphire, emery corundum, and other varieties. Corundum embraces the opaque specimens, usually of dingy colors and often dark; emery, the massive granular or compact variety, more or less impure, and sapphire the brightly coloured varieties."*

SAPPHIRE.

As the diamond is carbon, or charcoal, crystallized; so the sapphire is alumina, or clay crystallized. There are several varieties of sapphire.

ORIENTAL RUBY.

The red sapphire is usually denominated the oriental ruby. Dana says: The best ruby sapphires occur in the Capelan mountains, near Syrian, a city of Pegu." This is an advance on Phillips, who made "Pegu a city in Ceylon"; still the mineralogists make slow progress in geography. In 1833, a letter from a Roman Catholic priest, D. Amata, was published in the Journal of the Asiatic Society of Bengal, which showed that the Capelan mountains are about seventy miles north of Ava, instead of being in the vicinity of Rangoon, as they would be if "near Syrian." The Burmese call the ruby by the same name that they do the precious garnet, and are not always able to distinguish them.

ကျောက်နီ။ ပတ္တမြာနီ။

* Dana's Mineralogy.

BLUE SAPPHIRE.

The blue sapphire is not so valuable as the red, but is found of larger size, and is the variety denominated sapphire in popular language.

နီလာငှတ်ခါ။ နီလာမိန်။

VIOLET SAPPHIRE.

The violet sapphire, or oriental amethyst, is found in the same localities as the common sapphire.

နီလာခရန်။

YELLOW SAPPHIRE.

The most valuable topaz in Burmah, is the yellow sapphire, or oriental topaz.

Mr. Oldham found "minute grains of topaz" with a fine sand of magnetic iron ore. I have met with them in great abundance in the magnetic iron sands of Tavoy, but always extremely small. He also reported, "small crystalline pieces of topaz" in the gold sands of Shwaygyen.

ဥါသဖရား။

GREEN SAPPHIRE, OR ORIENTAL EMERALD.

A green gem is often seen for sale among the Burmese, which Europeans usually call emerald; but it is probably a green sapphire. The true emerald may however be among them.

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QUARTZ AND OPAL.

Quartz and opal follow in order, the former divided into vitrious varieties, as rock crystal, amethyst, and prase; chalcedonic varieties, embracing carnelian, agate, onyx, cat's-eye and flint; and jaspery varieties, including the helietrope.

CRYSTALIZED QUARTZ.

Small crystals of quartz are common, and large specimens of rock crystal are sometimes brought from the Siamese frontier. Some of the "Ceylon diamonds" which the Ceylonese offer for sale, are made of rock crystal; and many of the "rubies," and other precious stones, that the Shans bring with them in their annual caravan from the north of Burmah, are made of rock crystal colored artificially. They are heated and plunged into colored solutions. A gentleman of my acquaintance being about to visit Calcutta a few years ago, purchased a few of these "jewels," a great bargain, of a Shan who was anxious to return home, and

therefore sold for fifteen rupees what, he said, was worth a hundred. On being subjected to the examination of a jeweller in Calcutta, they were found to be all either coloured quartz, or paste, and therefore not worth a pice!

မြိုင်စိန်။ ဝန်ကျောက်။ စိန်ပလုပ်။
လိုးပုံကျူး, လၢၢ်ပီကျီ။

GREEN QUARTZ.

Green quartz, or prase, is sometimes found in the form of pebbles in our mountain streams, but it is not very abundant.

MILKY QUARTZ.

Milky quartz is occasionally found in the Mergui and Tavoy provinces.

AMETHYST.

Pebbles of amethyst, or violet quartz, are brought from the rivers in Burmah, where they are regarded as a variety of the sapphire; the Burmese name signifying "egg-plant sapphire," or as they are sometimes called, "egg-plant flower stone," from the blue flower of the egg-plant.

နီလာခရန်။ ကျောက်ခရန်ဖွင့်။

YELLOW QUARTZ.

I have met with dull specimens of yellow quartz, or citrine, on the Tenasserim; but it is not common.

GRANULAR QUARTZ.

The laterite often incloses fragments of a granular quartz rock, which crumbles to pieces in the fingers into a fine quartz sand.

CHALCEDONY.

"Chalcedony is true quartz, according to Fuchs, with some opal disseminated through it." Common chalcedony has the lustre of wax, or is milk white. It is found in the laterite of Mopoon near Maulmain, and in other localities. The Burmese call all the varieties of chalcedony, by the generic term *ma-hu-ya,* distinguishing each by an adjective.

မဟူရာ။ မဟူရာဖြူ။

YELLOW CHALCEDONY.

Fine specimens of yellow chalcedony are occasionally found at Mopoon.

မဟူရာဝါ။

CARNELIAN.

Carnelian is now regarded by mineralogists as a "reddish variety of chalcedony." It is found at Mergui, in the neighbor-

hood of Maulmain, and in many localities in Burmah. The Burmese sometimes call it "*kyat-thwe*," fowl's blood, from its colour. *Sard* is deep red carnelian.

မဟူရာနီ။ ကြက်သွေး။

AGATE.

"Agate is a variety of chalcedony, the colours in clouds, spots, or bands." Agates are found both at Mopoon, and Mergui; and are not rare in Burmah

မဟူရာ။

ONYX.

"Onyx resembles agate, but the colours, usually a light clear brown and an opaque white, are arranged in flat horizontal planes." The onyx is often seen in Burmah, but the localities whence it comes is not known. *Sard*-onyx is onyx with stripes of sard.

မဟူရာကျောင်ဝင်။ မဟူရာဖြူကျောင်ဝင်။

CAT'S-EYE.

"Cat's eye is a translucent quartz, presenting a peculiar opalescence, or glaring internal reflections, when cut *en cabochon*, which effect is owing to filaments of asbestos." It is called cat's-eye from the resemblance it bears to the eye of a cat, and for the same reason the Burmese denominate it "*kyoung*," cat. The stones are common and cheap, but the Burmese localities where they are found, are not known.

ကျောင်။ လိုးမှုယိုး. လၢၵၢၵဲယိုးမဲၵ်။

FLINT.

"Flint is somewhat allied to chalcedony, but more opaque, and of dull colours." Flint does not appear to be found in Burmah, at least in any quantity. The Burmese government are indebted to the merchants for all their gun flints.

မီးခပ်ကျောက်။ လိမ့်၂. လၢၵ်မှၵ်။

JASPER.

Jasper is regarded as a variety of quartz, and is not uncommon. I have met with yellow jasper on the Tenasserim, and red jasper on the Toungoo mountains. Capt. Lloyd collected specimens of jasper conglomerate on the northern Elephant Island in the Mergui Archipelago.

STRIPED JASPER.

I have seen striped and green jasper, said to be found in the country, which the Burmese call *na-ga-thway*, from *naga*, a dragon, and perhaps *thwe*, blood.

နဂါးသွဲ။

BLOODSTONE OR HELIETROPE.

The green stone with red or yellowish dots called bloodstone, or helietrope, is not rare; but whether found in Burmah or not, is uncertain. The natives call it by the same name that they do green jasper.

ကျောက်စိမ်း

SILICATES.

The silicates are a large class, but their divisions and subdivisions are not introduced.

AUGITE.

On the banks of the rivers near Maulmain and Tavoy, masses of dolerite are found which contain augite. They are not however found in situ, and have probably been brought from the Isle of France.

LABRADOR HORNBLENDE, OR HYPERSTHENE.

Baron des Granges, to whom was sent specimens of the greenstone east of Tavoy, said that the hornblende it contained was Labrador hornblende.

HORNBLENDE.

Colony Burney sent specimens from Ava, of "dark green prismatic hornblende obliquely hexagonal, with romboidal clearages;" Mr. Oldham found fragments of hornblende slate in the gold sands of Shwaygyen; and hornblende forms a constituent of the greenstone, so abundant in many districts.

ACTINOLITE.

Actinolite is a variety of hornblende, and Oldham found beyond Ava, "blackish grey actinolite or chiostolite slate."

ASBESTOS.

Asbestos has been found near Tsai-gain; "fine silky white amianthus, crystallized on silicious dolomite, as it may be called from its behavior with tests."

BERYL AND EMERALD.

Beryls and emeralds are varieties of one species, and brought from the north of Ava, but the localities in which they are found do not seem to be known.

ပတ္တမြား

PRECIOUS GARNET, OR ALMANDINE.

Precious garnets in the form of pebbles, are often seen for sale among the Burmese. Mineralogists say, the most beautiful come from Sirian, the capital of Pegu. It is the carbuncle of the ancients.

"In a creek on the Siamese side" of the Tenasserim valley, Dr. Helfer says "rubies are found. They are, however, of a very inferior description"—probably garnets.

ကျောက်နီ။
ပန်ရည်။ *a variety with a violet tinge.*
စီမြူကုံ။ *inferior varieties.*

COMMON GARNET.

The common garnet is occasionally seen in the sands of our rivers, and "minute red garnets" are found in the gold sands of the Shwaygyen.

ပဒဲကျောက်။

PYROPE.

A variety of the garnet, either identical or nearly resembling the pyrope garnet, is brought from Burmah. It is characterized by giving to transmitted light a yellow tinge, or as the natives say, the color of the ox's gall; and hence the Burmese name, which in Pali signifies ox-gall.

ဂေါ်ရုတ်။ ဂေါမာဇု။ *(Pali.)*

ZIRCON.

Some of the best of the Ceylon jewels are probably zircon, the pale variety of which supplies the diamonds used in the jeweling of watches; and Jameson says it is often sold as an inferior kind of diamond.

သီဟိုလ်စိန်။

MICA.

Large plates of mica seen in the bazar are imported, but small plates of white mica are common in the granite, black occasionally, and the gold of Shwaygyen is mixed with "minute flakes of bright coloured mica, generally of a rich golden tint." I have had it brought to me at Toungoo, as auriferous; and a very similar looking mica in large plates was presented by the king of Burmah to Dr. Dawson with the request that he would procure for him a large quantity.

By a misnomer the plates are often called talc.

လခြေး။

FELSPAR.

Crystals of felspar abound in the granite, and where it is porphyritic, as on Double Island, and on the islands opposite Yay, they are sometimes quite large. It is usually white, but the granite at the mouth of Tavoy river, on the east side, is studded with beautiful crystals of flesh-colored felspar.

MOON-STONE.

Some of the "cat's eyes" that are brought for sale by the Ceylonese, are made of adularia or moon-stone, a variety of felspar found in Ceylon resembling opal. In Europe it is often sold for opal.

ကျောင်း။

PORCELAIN CLAY.

The clays have not been analyzed, but there are clays at the bases of some of the granite mountains, where the felspar has decomposed so much, that the paths are thick with a coarse quartzose sand, and a few grains of mica that remain. As porcelain clay is produced by the decomposition of felspar, such is probably the clay in the localities to which reference has been made.

POTTER'S CLAY.

The clay in which the petrified trees are found has the appearance of fine potter's clay; and clays from the banks of the Ataran and Gyaing rivers were found, Mr. O'Riley says, "after several trials at the Calcutta mint, to possess every good property of the best English fire clays."

"The yellowish ferruginous sandy clay" which occurs nine feet below the surface, and on which the auriferous deposits rest at Shawygyen, "would answer well," says Mr. Oldham, "for the coarser kinds of pottery." It stands the fire well and is sufficiently tenaceous to admit of being readily moulded.

OBSIDIAN.

Major Berdmore writes that obsidian is "not uncommon in Mergui, and I have had large lumps of it brought me from Yunselin."

မဟူရာနက်။

MACLE.

In the slate strata near the granite east of Tavoy, are numerous crystals of what Hitchcock calls andalusite macle; because, with many other mineralogists, he thinks andalusite and chiastolite or macle, one species. The crystals are very small, but exceedingly numerous. Occasionally their rectangular ends are marked with the Greek Chi, or English X, from which they are called chiastolite; but more frequently the X is wanting. It is much softer than either andalusite, or chiastolite, as described in works on mineralogy, but it is quite as hard as specimens which I have received from America.

It must be a very rare mineral in India, for the Curator of Mineralogy and Geology, of the Asiatic Society's Museum, did not recognize it as any mineral with which he was acquainted; and other Indian geologists, and mineralogists, have been equally

puzzled with it. There can be no mistake, however, in the identification, for I have specimens before me, labelled by one of the first mineralogists in America, differing in no important respect from the Tavoy mineral.

SCHORL.

Schorl, or black tourmaline, is found in quartz at Toungoo, near the mouth of Tavoy river on the east side, and also at the foot of the eastern mountains, near the head waters of the Dahgyaine, north east of Maulmain. The crystals are numerous, and in Tavoy they are large, but not so handsome as seen in foreign specimens.

အမြိုက်နက်။ အကျွတ်နက်။

GREEN TOURMALINE.

A green jewel that cannot be distinguished by the eye from beryl, is brought with the Ceylon diamonds ; it is however, green tourmaline ; as may be ascertained by a very simple test, for beryl scratches quartz, but tourmaline is scratched by quartz.

သီဟိုလ်စိန်။

CEYLON DIAMONDS.

White jewels of an inferior quality are often offered for sale in Maulmain under the name of Ceylon diamonds, but they are usually made from green tourmaline. White tourmaline, is a rare mineral, but the green variety being common, the jewelers by exposing it to heat expel its color and it becomes white.

သီဟိုလ်စိန်။

YELLOW TOURMALINE.

Among the Ceylon diamonds that are seen for sale in Maulmain, is a yellow jewel resembling a topaz ; but which I find, on examination to be yellow tourmaline.

ဥသဘုရာ။ သီဟိုလ်စိန်။

RED TOURMALINE.

Red tourmaline is found in Burmah. Jameson says the king of Ava gave a specimen to Symes, which was valued at five hundred pounds in England.

Rubelite.

Tourmaline rubelite.

မိန်နီ။

SOAPSTONE.

Soapstone, potstone, or steatite, is constantly for sale in the stalls, being used by the Burmese to write with on their black-

boards, as Europeans use chalk. It is brought from some locality above Ava.

ကန့်ကူ။ ဖကိုး. ပကိ။

COMMON SERPENTINE.

Dr. Helfer found serpentine on the islands of the Mergui Archipelago, and Dr. Morton picked up a boulder near Amherst, containing a small vein of common serpentine; which indicate its existence in the Tenasserim Provinces, although no definite locality where it exists, is known.

PRECIOUS SERPENTINE.

Precious serpentine exists in the Hookhoong valley, northwest of Avá, whence it is exported to China, and brought into the southern parts of the empire.

ကျောက်စိန်။

CHLORITE.

Grains, or lamina of chlorite, are found in connection with tin, and portions of the beds of clayslate east of Tavoy, contain chlorite slate.

ကျောက်ပလဲ။

ACIDIFEROUS MINERALS.

Under the caption of acidiferous minerals, as found in the older writers on mineralogy, it will be convenient to notice lime, borax, alum, saltpetre, and natron.

LIME.

Lime, both the carbonate and sulphate, is found in a variety of forms in Burmah.

COMMON LIMESTONE.

All the limestone of the provinces that I have met with, belongs to the older secondary formation; which produces what is usually denominated common limestone.

Of the specimens sent to Dr. Ure by Mr. Blundell, he said: "The limestone from Tavoy has a specific gravity of 2·7, and is a perfectly pure, semi-crystaline carbonate of lime, akin to statuary marble. It is well adapted to act as a flux in the melting of iron. The limestone of Mergui has a specific gravity of 2·7; it is a pure calcareous carbonate."

ထုံးကျောက်။ လိးဘၢ့။ ဘၢ့လိး. ထူဉ်လၢၢ်။လၢၢ်ထူဉ်။

STALACTICAL CARBONATE OF LIME.

All the limestone caves have stalactites hanging from their roofs, and stalagmites raised on their floors. The Siamese Karens often bring over bits of limestone of the shape of a shell,

and when broken, a shell usually of the genus melania, appears, that has been encrusted with carbonate of lime. Much of the alabaster of which ornaments are made is stalagmite; but all the alabaster images of Burmah are made of marble, and not of compact gypsum, which they much resemble.

There is a small stream in the limestone hills beyond the water-shed east of Toungoo, which, the Karens say, turns every thing to stone that is put into it.

ကျောက်စက်။ လိုးမှုလုံ့ဆုံ့. သာ၎်မှ၎်လိုဒီး။

CALCAREOUS TUFA.

Several varieties of calcareous tufa are found in the vicinity of the limestone rocks, formed by the deposition of the waters that run over them. They often contain shells belonging to existing species; especially *Helix anguina*, and *Cyclostoma tuba*.

GRANULAR LIMESTONE.

Beds of primitive, or granular, limestone are found near Ava, from which all the marble statues of Gaudama have been made "from time immemorial."

ကျောက်ဖြုန်း။

ARRAGONITE.

Some of the caves on the Salwen furnish a species of double refractive spar, which I judge to be arragonite.

DOLOMITE.

Mr. Prinsep had "silicious dolomite" from Tsagain; Mr. Oldham found "blue calcareous sandstone, slightly dolomitic," above Pugan; some of the limestones in the east part of Amherst province, Mr. O'Riley found to be magnesian carbonates, and Prof. Mitchell, in his analysis of the lead ore from the Salwen-limestone, found magnesia among its constituents.

A limestone in Aracan, Mr. Stilson has used as a lithographic stone in a small way; but it does not do well.

အန္ဒကူ။

CALCAREOUS SANDSTONES.

Mr. Oldham met with calcareous sandstones at many places on the Irrawaddy, and there is a calcareous grit apparently of the tertiary formation, found on the Tenasserim in about latitude 14° 20'. It is composed of grains of sand united by a calcareous cement. It is of a uniform grey color, and makes the best whetstones that are found in the Tenasserim Provinces.

CHALK.

Chalk is seen in the bazars, but it does not appear to be a production of this country, being imported from Bengal.

မြေဖြူ ဂျမ်းအွေး. ဟိန်ဒိန်ဝါ။

MARL.

The soil may be characterised as marly in the neighborhood of some of the limestone ranges, but no beds of marl have yet been discovered.

FLUOR SPAR.

I have a small specimen of bluish crystals of fluor spar, which the Burman, who brought it, said was found in the northern part of Province Amherst. As the mineral is often found in connection with lead, it is probable they will be found together in Burmah.

Fluate of lime.

SELENITE.

A fine transparent crystal of selenite in the shape of a parallelopipid was brought me by a Burman, who said it was found in Amherst Province; and Mr. Oldham found selenite near the petroleum wells.

Crystallized sulphate of lime.
Foliated " "
ကျောက်သထဲဂေါတံ။

FIBROUS GYPSUM.

A fine variety of fibrous gypsum is seen in some of the China shops; but it is brought, the Chinese say, from China. They use it in medicine, and say "it is very cooling"!

Sulphate of lime.
Sha-kaung. *(Chinese.)*

GRANULAR GYPSUM.

Gypsum is found near the banks of the Tenasserim in about latitude 13° 40' N. It is granular and friable, and does not correspond in appearance to ordinary specimens; but Dr. Morton who analyzed it, pronounced it a decided sulphate of lime.

BORAX.

Borax is found in all the bazars, and is extensively used by the native doctors.

Borate of soda.
" " *unpurified, Tincal.*
လက်ခြား။ လက်ခြားမှိုင်။

ALUM.

Alum is found in a reddish slate clay, or soft clayslate, in the valley of the Tenasserim, about forty miles below Matah at the

forks. It is also contained in an indurated sand from a neighboring locality; and Dr. Brandis has recently discovered large deposits of alum clay in the valley of the Yuneselon.

Sulphate of alumine and potash.

ကျောက်ချင်း လိုးဆဲ့. လၢၢ်ဆံ်း

SALTPETRE.

Saltpetre is found in some of the caves, and is manufactured extensively on the Irrawaddy between Pugan and Ava.

Nitre.

Nitrate of potash.

Prismatic nitre.

ရန်းစိန်း ဖျါအ့ၢ. ဘျါအ့ဉ်း

NITRATE OF LIME.

The nitrate of lime used in the manufacture of saltpetre was found to abound in the vicinity of the petroleum wells. "According to Hausmann," says Dana, "a large part of the so called nitre in nature is this salt."

NATRON.

Natron is said to be abnndant in some localities above Ava, where the Burmese use it for soap, and call it "earth soap." This is the material of which Jeremiah speaks: "Though thou wash thee with nitre;" and to whose effervescing property with acids, allusion is made in Proverbs: "As vinegar upon nitre." In both instances the translation ought to be *natron*, which abounded in Egypt, and was well known to the Jews.

Carbonate of soda.

မြေဆပ်ပြား

PROGRESS.

Law of Progress.

We have now passed in review all the forms of creation, from the highest to the lowest, and would be at fault to proceed further, were it not that a rare Talaing book here comes to our aid, and teaches us how all these things originated. This work purports to have been translated into Talaing from the Shan language at Labong, A. D. 1768. It was, however, originally written in Pali, for portions of the Pali text accompany the vernacular version.

The developement-hypothesis of the French philosophers has been traced to the Greeks; and here, in the origin of the mineral and vegetable kingdoms, the same doctrine is presented by the Budhists. It probably had its origin where the Indo-European languages were first spoken, for it has clearly accompanied them in their migrations, both East and West. The male and female creators, here emanating from the elements, resemble the first Eons of the Gnostics, which were produced by the Bythos; but are perhaps more nearly allied to some of the myths in the Puranas. The system here taught is quite different from any thing that has hitherto proceeded from Ceylon, or Eastern India, but approaches, in some of its features, to the Budhism of Thibet, yet is materially different. Moreover, as the originals of the Thibetian books are Sanskrit, while this book was first written in Pali, it cannot have been introduced from the North. The Singalese books were nearly all destroyed in the sixteenth century, and the Burmese, Talaing and Tai libraries have been so imperfectly examined, that nothing can be argued from our previous ignorance that such works existed.

The *Mulamuli** opens with the statement that, when Gaudama, soon after he attained the Budhahood, preached to his followers in Pali, they found it difficult to understand him; but one of them, the great Kachchanya, prepared a Pali grammar which enabled them to understand his language with facility. When

* Fron *mula*, root, origin, beginning; because the work thus named treats of the beginning of things.

Kondanya expressed his satisfaction with the grammatical principles evinced, Gaudama replied: "Kondanya! the law which Kachchanya has followed, is not his own. It is a natural law, that has descended, generation after generation, from the days of the Budha Tikkhagga, at the beginning of the world." Kondanya then expressed a desire that Gaudama would inform them of the origin of the universe; and he responded in an uninterrupted discourse which occupies the volume under consideration.

"What was the first thing?" he asked. "Law. What law? The law of progress. Kondanya! before this mundane world came into existence, there were no bramhas, no devas, no men, no beasts, no earth, no fire, no air, no trees, no grass, nothing whatever; all was emptiness. The first things that came existence, were the cold and hot seasons. They appeared simultaneously, and were succeeded by a wind blowing unceasingly." The air increased until a mass was accumulated, nine millions six hundred thousand miles thick; when water appeared, which went on increasing till it covered the air to the depth of four millions eight hundred thousand miles. From the water a vapor began to arise, which afterwards fell in rain. The dry season dried up the rain, and earth appeared, which increased until it was two millions four hundred thousand miles thick. The earth had a disposition to produce stones or minerals, and the ores of silver, gold, iron, tin and copper appeared, together with the various precious stones. On the gold ore, the first appearances of vegetation were seen, in the form of green mucous slime, or brittle-worts,* which were followed by the grasses, and by the other plants of the vegetable kingdom, in succession.

The four elements had an inclination to produce living beings, the first of which were earth-worms and maggots, the produet of earth. Air gave birth to numerous insects; fire to fire-flies; and water to innumerable water-insects. These animals had life, but they had neither understanding nor spirit. For an *asankhyeya*† of kalpas, they continued to be born and die, when they began to increase slightly in intelligence; and, after an equal number of kalpas had elapsed, animals with bones first appeared. Still they were small, the largest not larger than the grub of the wevil that eats the areca-nut; their bones were of the size of fine grass-stems, and they were quite destitute of blood. These continued

* *Diatomaceæ.* See Lindley's *Vegetable Kingdom*, page 12.

† This being a neuter noun, the nominative singular is made by affixing *n*, as *asankhyeyan*, the form used by Turnour, who calls it an "incalculable period," which the etymology seems to justify. Kachchanya the grammarian, however, says that it is the number designated by a unit with twenty-five ciphers affixed. Another authority says that the seven ciphers of a crore, the highest number for which there is any proper designation, must be multiplied by twenty, and that the product, one hundred and forty ciphers, appended to the unit, constitutes an *asankhyeya*.

to be born and die for a thousand asankhyeyas of kalpas. At the termination of this period, the element earth, with the disposition to the feminine form, produced a female who was called *Ihlangeyyasangasi*. This woman lived on the odour of flowers; and at this period the earth was so abundantly covered with grass and trees, that it was difficult to move about, to lie down, or to rise up. Then the woman said to herself: Trees and grasses are very numerous. It is very difficult for me to come and go. It would be a good thing for me to create forms,* and cause them to devour the trees and grasses." Thus saying, she took earth and brittleworts, and made two forms of various races of animals, the one male, the other female." She next inserted in the hearts of these forms a disposition, or nature, for existence, and a grub or caterpillar was produced in each; and they became living beings. To these animals she gave names which are Pali; and "this is the language that existed anterior to the first of the Budhas; but, when they appeared, each one spoke this language, down to the last." One hundred thousand species of land-animals, and seventy thousand species of fish, are said to have been created. These increased in individuals, by hundreds, and thousands, and tens of thousands, until they became exceedingly numerous; and, in consequence of their devouring the herbage and trees, the earth was almost denuded of vegetation. Nothing came to flower or fruit, and the woman sought and obtained with difficulty the odour of flowers on which to subsist. "Then she said to herself: 'They are astonishingly abundant! They have eaten up trees and bamboos, flowers and fruits, without leaving a fragment. What shall I do? It would be a good thing were they to die, and afterwards come to life again.'" Thus she thought for eight-four thousand kalpas; and, after they had elapsed, the element fire produced in another place a male. His name was *Pusangeyyasangasi*. When this man saw the different animals going to and fro on the earth, and enjoying themselves as they chose, he thought to himself: "'These forms are of one mind, and enjoy themselves in each other's society. Is there any form of being like myself?' He went wandering about, and met with the woman. When he saw her, he drew near; but she, observing him approach, said: 'Why dost thou come to me?' He replied: 'I come to make thee my friend and associate.'

* The Pali words is *rupa*, and, like the corresponding Sanskrit *rûpa*, admits of various renderings. It sometimes occurs in the Pali text where it is not rendered in the vernacular version, e. g.: *Tada tejodhatuya purisa rupa upajanti anya padese pusangeyyasangasi nama puriso*, i. e. "Then, from the element fire, a male was produced in another place. *Pusangegyasangasi* was the name of the male."

Upaja does not appear as a verb in Wilson's Sanskrit Dictionary, but it is common in Pali, conjugated like the seventh conjugation in Sanskrit, by the insertion of *n* between the root and termination.

The woman continued: 'Hast thou wisdom to devise one thing? Without that, thou canst not become my associate.' The man answered: 'Speak the thing that is to be done, and I will consider it.' The woman then said: 'These forms created from the four elements with a nature for existence—canst thou devise any way in which they may repeatedly die, and repeatedly come to life again, and not live continually?'" After considering the subject eighty-four thousand kalpas, the man "understood the mind of the woman;" and said: "If from the three sexual natures, and the four elements, a male, a female and a neuter be created, men, generation after generation, will increase in wisdom, and will be able to put an end to the beasts." When the woman heard these words, she thought he had spoken well, was pleased, and remained silent. After the two had remained together for a period the man went and brought the four embryo elements* to the woman, with as much of the element of glory† as a grain of mustard-seed. The woman took the embryo elements, and preparing them with clay and brittleworts, made three human forms, "one a neuter, one a female, and one a male. She inserted the element earth to give stability, the element fire to give strength, the element water to give beauty, the element air to produce joy, the faculty of seeing to distinguish forms, and the faculty of understanding to know sensations." Finally, she inserted a disposition, or nature, for spirit, which produced grubs or caterpillars in the abdomen; which in ten months brought living human beings, male, female and neuter.

These human beings soon became sick, when their creators consulted together, and decided that the seasons coming all together was the cause; so they separated them, and gave to each its appropriate period. This afforded relief, but they were thin, and then the rice-plant was created for them.

Afterwards, the creators thought: These people of ours have nothing to mark time. Let us prepare for them something to distinguish days and months." Then they made a large elephant. "The body was black like a black man, the feet and legs were white and shining like silver, the tusks were red with the glow of the ruby, the head resembled gold, and the trunk was like the sapphire-feathers of the roller."‡ Its length was four hundred and ninety thousand miles, and it fed on air and water. On its back they placed mount Meru, and put it in the midst of the

* Four *bhavya*, Sanskrit *bhavya*, what is to be.

† The Pali word is *si*, which I derive from *sri*. I am not confident of the rendering given to this word, nor of that of the preceding one noted. I have never met with either before, and they are not understood by the natives.

‡ *Coracias affinis*, often called the blue jay; but *roller* is its proper English name.

ocean. "Mount Meru sinks in the ocean seven millions two hundred thousand miles, and rises the same above it, in height." Then they made the twelve signs, the moon, and the twenty-seven lunar mansions.* Next, they created the sun, and caused it to revolve around mount Meru to give light; and for the moon they made a silver palace in the form of an apple-shell.† "Half way up mount Meru, they placed the first deva-heavens, and on the summit Tavatinsa, the second deva-heavens.

The human beings then grew, and had three children. The woman took great pleasure in the male, and watched over him, but had no regard for the neuter; and the neuter became envious of the happiness of the man and his wife, and killed the man. When the woman saw her husband die, she was unhappy, and took the body and laid it in a retired spot, alone, where she daily carried it food, until it had completely decayed. After the body was consumed, she placed by the spot a piece of wood, and set it up for a monument; and daily carried to it food. The woman and the neuter died in turn, and the children treated their mother as she had her husband, but neglected the neuter. These three children had thirteen children of their own, six boys and seven girls, the neuter not being continued. These children, when they observed different animals, made various exclamations, which became the first language of men, and this is stated to be the language of Magadha.‡ Subsequently, the people were sick, and the creators said to each other: 'The sons of the world are sick and dying, and there are none to assist them. It would be a good thing to make planets to prevent their being entirely destroyed.'" Then they formed palaces from the four elements, and set them with the planets within them in the zodiac.§

At this time, all men lived in peace. They ate, drank and worked in perfect harmony; and they soon began to kill animals both of the land and water, to support life. "For there was no one to teach them the distinction between meritorious and unmeritorious deeds."

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* The names of the signs of the zodiac are the same in Pali as they are in Sanskrit, Arabic and Greek. The names of the lunar mansions agree with the Sanskrit, but differ from the Arabic. However, the word which denotes an asterism or lunar mansion, *nakkhata*, Sanskrit *nakshatra*, is probably of similar origin with the Arabic, *menzil*, and the Hebrew *mazzal*, and *mazzar*; though Gesenius, erroneously in my opinion, defines the Hebrew words in the plural, by "the twelve signs of the zodiac."

† *Ampullaria.*

‡ The specimens given are not Pali.

§ Here the astrological views of the writer appear. Astrology continues to be in as much favor with the Burmese as it was in Europe in the dark ages; and the diagram they make, when they cast the horoscope, is precisely the same as that seen in all English books on astrology.

When the two creators looked on, and considered the mundane world, they were alarmed, for they saw that men at death, in consequence of killing animals, were conceived in the bodies of brutes. Then, by means of the four elements, they attached intellectual births to various fruit-trees; and persons who ate of the fruit produced children with virtuous affections. From this period divisions arose; for some men had evil hearts, and some good ones. After men had become very numerous, persons with good dispositions were very scarce, while the wicked abounded; and knowing not the distinctions between good and evil, at death they went to hell. "Hell was not created by any one, but was developed by unmeritorious works. The fire of the angry mind produces the fire of hell, and consumes its possessor. When a person does evil, he lights the fire of hell, and burns with his own fire. A wicked person causes the deeds that he performs with the six organs, seeing, hearing, smelling, tasting, feeling and thinking, to impinge upon himself; which at all times and in all places produces hell."

At this time, there was one good man, an orphan, and no one would show him hospitality; so he took up his abode under a lone hopea-tree, where he wept because he was friendless; and ultimately he became a hermit, repented of his sins, "knew himself," cultivated virtuous affections, and at death became the first deva, or guardian spirit, of trees. A few others obtained sufficient merit to become devas of trees, but the great mass of mankind went to hell, and were consumed in flames. Then the two creators said to each other: "This kalpa has endured very long indeed, and yet no one has appeared with sufficient moral power to bring it to an end, as we anticipated. Let us destroy the world by the element fire, and, after these people have died, the next that come will increase in wisdom and virtue." Then they made the sixteen bramha-heavens for a place of refuge, and created an immense elephant. When it held in its breath, there was neither rain nor dew, and the whole earth was dried up as if it had been burned. "Then men feared death, and an impulse was given to the law of love and compassion; so that when men died they ascended to the bramha-heavens.

A large measure of the element fire was infused into the palace of the moon; the sun could not keep its place, and came in contact with the moon; and the burning sun impinged on the planets till the whole universe was one entire conflagration and all was burned up below the Bramha-heavens. Then the elephant breathed out, and the rain descended, and extinguished the fire.

The remaining portion of the volume is occupied with stories to illustrate the gradual development of moral principles, from the smallest of meritorious acts, up to the period in which there was sufficient moral power in the world to produce a Budha.

After a hundred thousand kalpas had been destroyed by fire, the orphan, who had been king of the second deva-heavens, was

again born on earth, where the people were still ignorant of moral principles; but he possessed so virtuous a mind that he kept himself from taking life, from theft, from adultery, from speaking falsehood, and from drinking intoxicating liquors; and at death he went to the Bramha-heavens.

When more than ten thousand kalpas had passed away since he ascended to the bramhas, the soul of the poor orphan who became the first deva of trees, was again in a human form; and his son astonished his relatives and friends, by talking when he was first born. They exclaimed: "He speaks the language of grown men. He is a remarkable child; much is to be expected of him. We will call him Pratyeka-Budha."* He realized their expectations, and became a Pratyeka-Budha; which is defined: "One with power to discern the past, the present, and the future, of the single kalpa in which he appears," in distinction from a full Budha, who has all knowledge of all kalpas.

After one of these Pratyeka-Budhas had appeared, they gradually increased in number. "In some kalpas, there would be one, in others two, in others three, in others ten, in others a hundred, and in others a thousand. Ten thousand kalpas and one hundred thousand assankhyeyas of years had elapsed, after the appearance of the first Pratyeka-Budha, when a pious man was born on earth, who in his various transmigrations had met with eight hundred and twenty-five thousand Pratyeka-Budhas. He remembered his former states, but could not enumerate the number of times he had been a king, a poor man, a beast, or an inhabitant of hell. He said: 'A hundred thousand years of the highest happiness on earth are not equal to the happiness of one day in the deva-heavens; and a hundred thousand years of misery on earth are not equal to one day of misery in hell; and the misery of hell is not enumerated by days, but by kalpas. How shall I escape hell, and obtain eternal bliss?' He remained in meditation unceasingly, and when he saw his parents give rice to a Pratyeka-Budha, he thought to himself: 'How often, in former sates, have I given away gold, silver, slaves, buffaloes, oxen, elephants, and horses. These offerings have no power to destroy births. They are external offerings. I will make an internal offering. I will present my body a burnt offering.' He gave away his wife and children to beggars, and offered himself a burnt offering to the Pratyeka-Budha. After eigty asankhyeyas of years, and seventy kalpas more, had passed away, he was born agin on earth, having often in the interval, "made the living offering; and having met with two hundred and eighty millions of Pratyeka-Budhas." He lived a

* I have adopted the Sanskrit from *Pratyeka*, because the word has been anglicised, and it is undesirable to have two forms for the same word. Otherwise, the Pali *Pachche* would have been used. I derive it from *prati*, instead of, and *eka*, one, i. e. one instead of, or a substitute for Budha. M. Rémusat renders: "a separate or distinct Budha"—a signification unsuitable to the usage of the word in this article.

hermit, repeating the sacred sentencs, and at death went to the bramha-heavens.

Passing over several other episodes, the Suvarna-kalpa, or golden age, is reached. At this time, "beasts spoke the language of men, and when the trees were questioned they made answer." In this age, lived Tikkhagga, the son of a king, who, when he was four thousand years of age, became a hermit, and dwelt two hundred years under a butea tree, two hundred more under a shorea-tree, two hundred more under a banyan-tree,* and so on till he had made the circle of twenty-five different trees. By self-denial for five thousand years, in these twenty-five different places, he obtained infinite knowledge, while seated under the last one, a *Buchanania latifolia*.

"At the instant of becoming God, he exclaimed with joy; '*Aneka jati sansaran!*' i. e. 'Not one more mundane birth!' Then the devas and brahmas saw the wonderful glory which illuminated the ten thousand systems, and all assembled in the presence of this most excellent divinity, and said to him: 'Thou who excellest all devas and brahmas, what is thy name? 'On account of infinite knowledge,' he replied, 'my name is *Satwa*.'† Then men, devas and brahmas rejoiced, and adoringly exclaimed: *Namo tasya Bhagavato arahato samma sambudhasya*,'‡ i.e. 'Glory to this Bhagavat, worthy of worship, perfect in knowledge.

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* *Ficus indica*, Pali *nigrodha*, Sanskrit *nyag.·odha*. Some authors erroneously identify the tree under which Gaudama was perfected with the banyan, but that in Pali is *bodi*, Sanskrit *bhodhi*, the pipal *Ficus religiosa*. Kasyapa, the Budha said to have immediately preceded Gaudama, was perfected under a banyan; and the two trees are always distinguished in the Burmese translations, as well as in the Pali text.

† သတ္ဝာ။အဟံတပ္ပညုတညာနံနာမ။

Satwa in this sentence is here deemed equivalent to infinite knowledge; but in Tibetian Budhism, a Bodhisatwa is a Budha inferior to a Bhagavat whom he worships, but here they are identical.

‡ နမောတသာ၊ ဘဂဝတော၊ အရဟတော၊ သမ္မသမ္မ ဒ္ဓဿ။

This Pali sentence is written at the commencement of every Budhist book, Pali, Burman and Talaing, that I have ever seen; and it is, I believe, equally common in Tai books; but I never before met with any account of its origin, and the natives are so ignorant of the grammar of the language in which it is written, that they usually render, in the first person; "I worship." This is the rendering given in the Laws of Manu, translated from the Burman a few years ago; although Burnouf and Lassen's accurate Latin version had been before the public nearly a quarter of a century: "Adoratio huic Bhagavat (domino) arhat (venerando) completo intelligendi." I render *namo* by *glory*, rather than by *worship*, because for the verb *to worship*, in the closing sentence of the book, *puja* is used, Sanskrit *pûja*, which more accurately denotes that; while the verb *nama*, in Pali as well as Sanskrit, is more used in the signification *to bow, to pay obeisance*.

They then asked him for instruction, and he preached to them the *Mulamuli*, because, he said, it was best adapted to the degree of knowledge possessed by his hearers.

Ihtangeyyasangasi and *Pusangeyyasangasi*, the two creators, saw the glory that enlightened the ten thousand systems, and came to the Budha to make inquiries. He told them that they existed at the beginning, before men, and made the world, and that their merit was great. This intelligence was quite new to them, but they received it with great joy, and worshiping the Budha, expressed a desire to be like him. He replied that, if devas and men wished to be like him, they must make his image and worship it.

When Tikkhagga was about to take *nirvana*, men, devas and bramhas requested him to establish his religion, and "he established it for five thousand years, and appointed, as objects of worship, the Law, the Church, and the Substitute for Budha, his image." He then declared: "He who worships the Budha, shall have great glory; he who worships the Law, shall haye much knowledge; and he who worships the Church, shall have much wealth and pleasure."

Such is the history of the first Budha; but Prof. Wilson says:* "There can be *no first* Budha, for it is of the essence of the system that Budhas are of progressive development. There can no more be a *first* than there can be a *last*." Facts are too stubborn things to be resisted; and the existence of works like this in our Talaing monasteries translated from the Shan, proves that the system which recognizes a *first* Budha is widely diffused in Farther India; and this being the first contribution form Shan literature, we know not but it exhibits the orthodox Budhism of all the Tai tribes; and it well known that a first Budha is at the base of Budhism in Tibet. Should we admit it to be a graft on the original teachings of Gaudama, it then shows that the human mind, not satisfied with blank atheism, returns to the shadow of Moses for an original chaos and a Creator of the world.

* Journal of R. A. Society, vol. 16, page 255.

PROGRESS OF PEGU.

"The triumph of civilization over barbarism is complete. Every where progress meets the eye."

KEIGHLY.

For security of property, cheap justice, impartial judges, and moderate taxation, Britons have been contending and fighting, arguing and shedding their blood, talking and dying from the days of king John and Magna Charta, to the reign of Queen Victoria and the last reform bill. Nearly all they have obtained in the interval, Lord Dalhousie gave to Pegu by a stroke of the pen in his proclamation of annexation, and raised the people, by a wave of the hand from a crushing despotism, as old as the origin of oriental nations, where no one dared to appear rich, where every Judge had his price, and where taxation was at the will of every official.

The commercial progress has been unprecedented, and beyond the most sanguine anticipations. The inland trade from the north is constantly increasing. At Toungoo the regular annual rate of increase has been upwards of *sixty* per cent. The export of rice by sea has so enlarged, that it now more than equals "a third of the rice trade of Bengal, a province three times as large and thirty times as populous." Agriculture has rose hand in hand with commerce, and "without an addition of a sixpence to the taxation, the revenue has increased with the increase of cultivation to upwards of forty lakhs of rupees."

"The expenditure on an average amounts to about eighteen lakhs, and Pegu therefore contributes twenty-two to the general revenue of the empire. Even admitting, however, that its garrison is a direct addition to our military expenses, five native and one European regiment will not cost above seventeen lakhs, and the Province, therefore, in the fifth year of its occupation presents a clear profit—calculate it how you will—of fifty thousand pounds. This amount admits of almost indefinite extension. The lands are still scarcely tilled, the interior not yet peopled, the effect of the new freedom has but begun to be developed, and we

see as yet but the beginning of a trade which already surpasses that of Aracan. The result is most creditable both to the ability and to the moderation of the Commissioner. Col. Phayre has avoided the over taxation of the land which is the temptation of all Indian statesmen; he has developed a tax which though hated in Europe is old in Burmah, and which, if not perfect in itself, at least relieves the land; and he has continued to attract a new population to settle in an almost desolated province.

"Should the trade continue to increase in its present proportion for only five years more, Rangoon will be a more important city than Madras."*

Since writing the above, Col. Phayre's Report for 1858–59 has appeared, which shews a continued increase in the revenue. The capitation tax has increased 40,000 Rs.; the fisheries 50,000, and the excise 60,000.

The following extracts show both what has been done, and what Government proposes to do, for the further progress of the country.

"The year 1858 was unfavorable to agriculture. A murrain prevailed among the cattle, thus cramping the labour of the cultivators; and there was a deficiency of rain, which in the Province of Pegu caused a short crop in most of the districts, and in the Burmese territory a famine. In a country where the land assessment is made annually, the revenue necessarily suffers from these fluctuations of the seasons, and from other contingencies which deteriorate the crops.

"It has been remarked in previous reports that great evils attend the present annual measurement of cultivated land. During the year 1858-59 an attempt has been made to induce the cultivators in a portion of the district of Rangoon, to accept leases for ten years at a fixed amount upon the whole area of a circle. The attempt failed in consequence of the cultivators not being unanimous on the subject. For, in a circle containing two hundred or more cultivators, each having his little independent property of about eight acres, it is essential to the success of the proposed plan, that all should be of one mind. But the people are alarmed, lest in an unfavorable year, they may be unable to meet their engagements. It is now intended that arrangements be made to commence the system as an experiment in those village tracts, or divisions of circles, in which the people consent to the terms offered. This it is hoped will gradually win the suffrages of all the land owners in favor of long leases.

* Friend of India, Sept. 16, 1859.

"During the past year the Supreme Government sanctioned an establisment for commencing a land assessment, by placing fixed rates per acre on the tracts of land, termed, in the language of the country, *queng*, instead of on extensive circles as heretofore. The advantage of this plan is, that each village tract is reconnoitered, and a rate per acre fixed upon tracts of country having an area generally of three to five hundred acres, instead of as heretofore on circles of twenty or thirty square miles. This duty was entrusted to Captain Horace Browne, and the result of his enquiries will be reported in detail hereafter. The system is received as a boon by the people, since it adjusts the rates of land tax, according to the advantages of the soil, more equitably than can be done under the existing method, while it is most probable that the general result will be an increase to the land revenue. This increase will arise both from augmented rates being put on land which can bear them; and from reduced rates being placed on poorer land, thus enabling peasants to clear and cultivate waste land, which, with the present rates, would be unprofitable. This measure is in fact a necessary prelude to a system of long leases for land.

"The comparative statement of the amount demand for each item of revenue (omitting fractions) for the two last years, is as follows:

Items of Revenue.	1857-1858. *Rupees.*	1858-1859. *Rupees.*
Land,	12,59,917	12,08,408
Capitation tax,	8,57,365	8,99.075
Fisheries,	3,33,676	3,83,776
Salt,	49,641	71,870
Forest produce,	11,238	3,470
Excise,	3,25,333	3,98,740
Sea Customs,	3,03,938	3,33,070
Inland Customs,	5,08,513	4,77,757
Port dues and Marine receipts,	1,23,522	1,43,510
Rent on town building lots,	43,573	45,193
Timber,	1,17,286	3,94,012
Fines and fees,	1,00,562	1,39,843
Sale of unclaimed property,	5,970	4,052
Postage stamps,	14,764	16,976
Miscellaneous,	22,305	7,494
Karen Chiefs' tibute,	3,874	3,874
Total Rupees,	40,81,477	45,31,120

"Land to the amount of 41,021/5/10 was sold in the town of Rangoon during 1858; this is not included in the regular revenue.

The following items, included last year as a portion of the revenue, have now been detached therefrom.

Items.	1857-1858. *Rupees.*	1858.-1859.
Municipal tax,	52,556	82,639
Bazar rents,	14,566	23,005
Ferries,	1,678	2,157
Total,	68,800	107,801

"Although the year has been decidedly unfavorable both to agriculture and commerce, yet from the increase in the revenue, it is evident that the general prosperity of the country has not retrograded.

Statement shewing the Principal Articles of Import and Export at the Sea and Inland Frontier Custom Houses of the Province of Pegu, for the year 1858–59, *ending* 30*th April* 1859.

1. Articles Exported by Sea.	2. Value of articles exported by Sea. Rs.	A.	P.	3. Articles imported by Sea.	4. Value of articles imported by Sea. Rs.	A.	P.	5. Articles exported by land, river included beyond frontier.	6. Value of articles exported by land river included beyond frontier. Rs.	A.	P.	7. Articles imported by land, river included from beyond frontier.	8. Value of articles imported by land, river included from beyondfrontier Rs.	A	P.
Timber, ...	783580	13	0	Cotton Piece Goods	1985318	13	9	Cotton Piece Goods	326080	11	0	Cotton Piece Goods, ...	196897	0	0
Rice & Paddy,.....	4513713	7	6	Silk, do.....	1492347	4	0	Silk, do.....	254347	5	0	Silk, do.	363534	4	0
Cutch, ...	698016	12	4	Twist, ...	1236058	2	1	Twist	142951	11	0	Wheat, ...	13010	0	0
Stick Lac, ...	23687	15	9	Woollens, ...	243250	3	8	Woollens, ...	33689	7	0	Gram, ...	48950	0	0
Hides & Horns, ...	39826	13	2	Timber, ...	35607	9	6	Rice & Paddy, ...	1386711	6	4	Raw cotton, ...	13181	12	0
Lead, ...	31191	12	0	Wines, Beer, Spirits &c.	718727	8	0	Salt, ...	444950	12	7	Ponies, ...	118145	0	0
Petroleum, ...	259932	12	10	Tobacco, ...	465252	8	11	Betelnut, ...	201209	3	1	Tobacco, ...	130662	8	0
Yellow Orpiment, ..	0	0	0	Treasure, ...	.....			Ngapee, dried fish &c	969128	9	8	Timber, ...	86919	11	9
Copper, ...	82118	4	0	*a* for Govt., ...	325100	0	0	Rock salt, ...	1200	0	0	Cutch, ...	166930	8	9
Raw Cotton, ...	12985	8	0	*b* for private parties	3400176	11	7	All articles not included above, ..	218336	13	0	Stick Lac, ...	14813	0	0
Tobacco, ...	65157	10	0	All articles not included above, ..	3773783	11	8					Dyes, ...	8211	0	0
Treasure, ...	.....											Lead, ...	11468	0	0
a for Government, .	75000	0	0									Copper, ...	36400	13	3
b for private parties,	1689478	1	8									Gold leaf, ...	8175	0	0
All articles not included above,.....	1833721	10	7									Petroleum, ...	137795	9	0
												Jaggery and Molasses,.....	340970	4	0
												Lacquered ware, ...	266214	10	6
												Sesamum oil, ...	617980	10	0
												Hides, Bullock and Buffalo, ...	3716	12	0
												Hard ware, ...	52607	8	0
												Metal ware, ...	16547	5	6
												Tea, (dry,)	4148	0	0
												Tea, (wet, pickled,)	99582	12	0
												All articles not included above, ...	354928	12	9
												Total Rs.....	3106060	13	6
Total Rs.....	10108411	8	10	Total Rs.....	13676622	9	2	Total Rs.....	3978605	14	8	Grand Total Rs.....	308,697,00	14	2

Value of Exports and Imports by Sea, Rs. 327,85,034–2–0

Value of Exports and Imports by Land, River included to and from beyond Frontier, 70,84,666–12–2

Abstract statement of the amount Demand of Revenue for the year 1858-59.

ITEMS OF REVENUE.	DISTRICTS.																							
	Rangoon District.			Town of Rangoon.			Basssein.			Prome.			Henzada.			Tharawaddy.			Toungoo.		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Land, ...	443291	15	5	0	0	0	250095	9	3	213651	15	0	177059	7	8	98876	11	11¼	25433	3	8
Capitation,...	204017	1	8	0	0	0	213116	14	7	206841	14	9	138912	0	0	96835	0	0	39353	0	0
Fisheries, ...	208917	0	0	0	0	0	106238	0	0	7084	8	0	42388	12	0	12478	3	2	6670	0	0
Salt, ...	49542	4	0	0	0	0	21715	8	0	0	0	0	612	8	0	0	0	0	0	0	0
Forest produce, ...	50	0	0	0	0	0	974	0	0	1035	0	0	175	8	0	236	0	0	1000	0	0
Excise, ...	287192	0	0	0	0	0	50780	0	0	15910	0	0	32749	0	0	3655	0	0	8454	3	1
Sea Customs, ...	281064	13	7	0	0	0	52005	8	5	0	0	0	0	0	0	0	0	0	0	0	0
Inland Customs, ...	0	0	0	0	0	0	0	0	0	467107	8	5	0	0	0	0	0	0	10649	9	10
Port dues and Marine Receipts,	132618	10	7	0	0	0	10892	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Rent on town building lots, ...	0	0	0	45193	12	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Timber & Mis.:	380212	14	9	0	0	0	0	0	0	5580	13	0	188	0	0	0	0	0	8030	13	7
Fines and fees, ...	25478	15	0	15140	9	11	34454	12	9	21966	2	5	25633	1	4	8293	14	0	8875	10	3
Sale of unclaimed property, ...	226	0	0	681	13	3	487	4	5	1889	12	6	397	13	10	170	1	0	199	13	5
Postage Stamps, ...	0	0	0	9654	8	0	1173	14	0	2316	2	0	544	10	0	158	7	6	3129	2	6
Miscellaneous,...	0	0	0	216	0	0	3234	10	1	0	0	0	2988	4	2	770	10	8	284	11	0
Karen Chiefs Tributes, ...	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3874	0	0
Total,...	20,12,611	11	0	70,886	11	10	7,45,168	3	6	9,43,383	12	1	4,21,649	1	0	2,21,474	0	3¼	1,15,954	3	4

Note.—During the year 1858-59, land to the amount of Co's Rs. 41,021-5-10 was sold in Rangoon; this is not included in the regular Revenue.

	Rangoon District.			*Town of Rangoon*			*Bassein.*			*Prome.*			*Henzada.*			*Tharawaddy.*			*Toungoo.*			*Total.*		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Municipal Fund,..	0	0	0	50199	1	10	11529	7	0	12832	15	9	8077	11	0	0	0	0	0	0	0	82639	3	7
Bazar Rent,.....	0	0	0	1870	7	3	1005	7	1	15368	10	6	3070	7	0	424	11	0	1265	12	0	23005	6	10
Ferries, ...	0	0	0	0	0	0	522	0	0	85	0	0	0	0	0	267	4	0	1283	0	0	2157	4	0
Total,....	0	0	0	52,069	9	1	13,056	14	1	28,286	10	3	11,148	2	0	691	15	0	2548	12	0	107801	14	5

Statement of Area, Population and Revenue of Pegu for the year 1858–59.

DISTRICTS.	Area in sqr. miles.	Population No. of souls.	No. of townships.	Land Revenue.	Capitation tax.	Customs.	Fisheries.	Abkaree including Opium.	Miscellaneous Taxes & receipts.	Grand TOTAL.
				Rs.	*Rs.*	*Rs.*	*Rs.*	*Rs.*	*Rs.*	*Rs.*
Rangoon, ...	9800	195759	15	443291	204017	281064	208917	287192	659010	2083491
Bassein, ...	8900	205295	15	250095	213116	52005	106238	50780	72929	745163
Prome,..	5500	195970	17	213651	206841	467107	7084	15910	32786	943379
Henzada, ...	2200	121529	7	177059	138912	0	42388	32749	30537	421645
Tharrawaddy, ...	1950	117903	7	98876	96835	0	12478	3655	9627	221471
Toungoo, ...	3900	54518	4	25433	39353	10649	6670	8454	25391	115950
Total,....	32250	890974	65	1208405	899074	810825	383775	398740	830280	4531099

Note.—The following items are not included in this return, viz :

	Rs.	A.	P.
Municipal Fund,....	82,639	3	7
Bazar Fund, ...	23,005	6	10
Ferries, ...	2,157	4	0
Sale of Land, ...	41,021	5	10
Total,....	1,48,823	3	11

In this statement the whole of the population of Toungoo is given at 54,518, but the Commissioner has correctly, it is believed, estimated in another place the Karen population alone at 50,000, and supposing the other districts to be underrated in a similar manner, the population of Pegu may be assumed in round numbers at one million. This affords reliable data on which to settle the vexed question of the population of Burmah, which has been variously estimated from two millions to seventeen. Yule calculates the area of Burmah Proper at 44,450 square miles, while the above table makes the area of Pegu 32,250. There is no good reason to believe that the region north of 19° 29' N. is more populous than Pegu, and at that rate we have,

Burmah Proper	1,378,000
Pegu	1,000,000
Aracan	362,000
Tenasserim Provinces	200,000
Under estimate Aracan and Tenasserim	60,000
Total	3,000,000

Three millions, then, may be safely taken as the whole population of the original Burmese Empire, of which more than half is now under British rule.

The administration of the laws, however, admits of a good measure of further progress before reaching perfection. The native population of British Burmah may be divided into two classes, the Burmese and the Karens, with their several congenors. The former have been characterized as the "dominant race," and the two are regarded by the British residents, much as they regard the Brahmin and the Pariah in India. The English ruler is usually from the aristocratic classes, and naturally feels with that class among the natives. He has no sympathies with the down-trodden serfs of the "dominant race." How should he, when he has none for his own countrymen? The great problem of British legislation, with both whig and tory, has ever been to keep the lower orders as low as possible; and if they have made upward progress in the nineteenth century, they owe it entirely to themselves. What the English have gained by their sympathy with the dominant races, the well at Cawnpore will be a more lasting monument than the Blackhole

in Calcutta. They are most cheerfully hated by the races they coax, from one end of India to the other; in Burmah as in Hindostan; and so long as like causes produce like effects, under similar circumstances, similar results may be anticipated—in Farther India as in Hither India.

If British supremacy be ever permanently established in India, it will be by making friends with the mountain tribes that have never embraced either of the three great prevailing religions of the upper classes—Brahminism, Budhism and Mahomedanism,—tribes found scattered in every land between the Arabian and China seas; known only to the dominant races to be oppressed, to the British to be despised.

The Karen is a true friend to the English government till he is goaded into madness by the treatment he receives. The Burmese, "the dominant race," constantly stands between him and justice in some form or other. With one honorable exception, no government officer has ever yet acquired the Karen language,* but has to obtain all his knowledge of Karen matters through the Burmese. This at the outset, gives the Burman a vast advantage over the Karen in any of the courts. Then the Judge is surrounded by Burmans from the time he takes his coffee in the morning, to the hour for dressing in the evening—a race as cunning as the old serpent in Eden, and as well able to beguile men as he was to deceive woman. They know all the weak points of the man with whom they deal. If he prides himself on being a good shot, he overhears them speaking to each other of his feats—should he be a dashing rider, that is quietly mentioned among themselves in his hearing; and however barbarously he may talk Burmese, if he flatters himself that he talks like a native, the people around him are in ecstacies with the accuracy of his pronunciation. He is never contradicted, however he may contradict himself, but to every dictum that passes the doors of his lips, he hears a musical response of

"*Hoke bà păyà, hoke bà păyà*," or, "*hoke tha-khen, hoke tha-khen*,"—"True, my lord; true, my lord."

The Burmese put their own colouring on every thing that comes before him, so that he sees every thing through a

* This remark should be slightly modified, as several government officers are known to have commenced the study of the language, though it is not known whether they have acquired a knowledge of it. It is certainly true, however, that a knowledge of the language is not a government requirement.—*Publisher.*

Burmese medium, breathes a Burmese atmosphere, thinks Burmese ideas; frequently adopts their dress when among them, occasionally their religion almost,* and often their morals altogether. The soundest eye cannot see the sun in its proper place while in the atmosphere, so the most immaculate Judge cannot apprehend accurately a case between a Karen and a Burman while in this Burmanized state.

A Karen is the antipodes of a Burman in every respect. The manners of a Burman are polished and winning; of a Karen, coarse and repulsive. Flattery is so foreign to his thoughts, that he has no word for it in his language. Justice is so cheap, that every Burman is so well practised in litigation that he can demean himself in court like a "Philadelphia lawyer;" while a Karen is so unused to judicial proceedings, that let his cause be what it may, and how upright soever his intentions, a cunning Burman may easily cross question him, so as to make him appear to perjure himself sixteen times in fifteen minutes. In a case that was tried a few years ago at Maulmain, a Karen was questioned on a vital point in the matter, and his testimony recorded in court; yet, when asked by the Missionary on his return in relation to his examination, he was actually unaware that he had been questioned, or given any testimony on that point whatever! It is very difficult to induce a Karen to appear in court against a Burman, because he always expects to go to the wall. Several years ago, the Karens of Tavoy complained that they were charged by the Burmese receiver of the revenue with arrears of taxes that they had paid. It was in vain that they were urged to go to Mr. Blundell themselves; so rather than see them imposed upon, the writer took up the matter, and Mr. Blundell decided that they had paid the taxes for two years more than they had been credited with.

We are encouraged however to believe that there is progress in these things as in all others. The Karens will scarcely be subjected to oppression for a series of years, as they were at Mergui under the government of Capt. Corbyn, Assistant Commissioner there up to 1844. It is due to Major Broadfoot that his conduct was brought to light; but the

* One Captain, who shall be nameless, declared in public audience with the governor of Rangoon, that he believed in the religion of Gaudama; and so far as such men can be said to have any religion, he was probably as much of a Budhist as a Christian.

Karens never received any compensation for the wrongs the Assistant Commissioner inflicted upon them, nor was his conduct ever made public. The writer, in a paper prepared for American readers, expressed his satisfaction in general terms at the great deliverance which Major Broadfoot had wrought for the Karens, and the Editor of the Friend of India, being unacquainted with the facts, came out on the Missionaries in no measured terms for passing such unjust reflections on the fallen Government. Mr. Blundell had no part in the matter, beyond the responsibility that rests on every Commissioner to see that his subordinates do justice.

A friend who was present at the investigation which Major Broadfoot instituted at Mergui into Capt. Corbyn's conduct, wrote me at the time:

"You ask me to state the amount of oppression which the Karens in Mergui suffered. To do this subject justice would require a history of some hundred pages; even if nothing were brought forward except what was proved in open court, during the late trial of the Assistant Commissioner of the Mergui province. I have time to give you only a short sketch.

"In the first place, the Karens of that province were placed under the control of a Burman who was high in the favor of the Assistant Commissioner, and who was not only left to carry out his own measures, but was backed in every thing by the threat of fines and imprisonment to be employed against those who should dare to complain. This Burman appears to have had frequent commissions to procure supplies of various kinds for the use of the Assistant Commissioner, and though he himself paid for the same, the pay was often kept back from those who sold the articles, and went no further than the pocket of this head man. His own supplies were frequently obtained from the Karens by virtue of his official power, and then, not merely for his own and family's consumption, but for the purpose of trade.

"Their taxes also were collected by this head man, and, as appeared in court, they were not only required to pay, in numerous instances, more than the regular assessment, but to pay in kind at a rate fixed by the collector, even in cases when they preferred to pay the money, because they required the grain in their own families. Often the money was shown to the collector, and its acceptance begged with tears; but, no, the revenue must be paid in kind. In re-

peated instances revenue in kind was taken in articles which are not assessed by government. The Karens were compelled to transport their grain, and other articles, one, two, three day's, and sometimes a week's journey, without compensation.

"The Karens *proved* in court that they had paid seven thousand baskets of paddy as revenue, which was not found in the revenue books, and no account of it could be given by the revenue officers, besides, between one and two hundred rupees in money.

"The Karens were employed in cutting timber, and other labours for government officers, for which they received no compensation.

"In several cases which had been brought as complaints before the court, when property had been bought of the Karens by this Burman head man, or some of his people, and not paid for, the cases were decided against the complainants without calling their witnesses, merely upon the word of said head man, and he not under oath, and the complainants dismissed with a reprimand for preferring complaints against said head man.'

"The great oppression, however, was in connection with the working of the coal mines. The Karens were *compelled* to sell their grain to feed the numerous workmen in these mines, first at twenty rupees per hundred baskets, and afterwards at twenty-five per hundred, and transport it to the mines,' often several day's journey, either carrying it on their own backs, or floating it on rafts. They were prohibited from selling or disposing in any way of any grain except to government on pain of ten rupees fine and imprisonment for every offence. These measures so completely drained the entire Karen population of grain that they were in the utmost danger of absolute starvation, and they only saved themselves by digging and eating the *kna* root. Many families did not taste of a morsel of a rice for four months.

"The apology offered by the Assistant Commissioner for these measures was, the coal mines were an experiment, and the prospects of the Province depended on his being able to show Government that they could be worked at a moderate expense. But other facts connected with the affair, which came out in the course of the trial, tend to excite doubt, whether this was the true reason of the measure; for the same grain, as well as that taken on revenue account, it appears the Government was invariably charged

thirty five rupees per hundred baskets. The Karens were moreover, in many cases required to turn the paddy into rice without compensation, and convey it to the coal fields, for which they received only *half a rupee* per basket, and said rice was sold in a bazar at the mines for *one rupee* per basket. The grain which had been conveyed to the mines by the Karens in paddy, was much of it turned into rice by convict labour and the same sold in bazar at *one rupee* per basket; and what was used for Government purposes sold to Government for one rupee per basket. What became of the gain accruing from this advanced price, was shown by no document whatever. Hence the reason of these measures does not appear to have been the one assigned; though even that is a very inadequate one for reducing thousands of families to a state of starvation. The fact is, personal emolument, after giving the Company a certain amount of revenue, seems to have been the object of all the official acts, of all Government officers in that Province, from the Assistant Commissioner down to the lowest head man. The subordinates were true to the interests of their superiors, and their superiors repaid their fidelity by winking at their more petty oppressions, for their own advantage.

"Several families of Karens actually fled for protection from these oppressions to the Siamese territories, and the remainder were contemplating the moving off in a body had not the new Commissioner just at that crisis arrived, which led them to hope for some favourable change; and they were not disappointed."

It will be asked, how did such a man get into the Commission? On the general principle, we reply, that all men till recently got into office under the English Government—"INTEREST." No qualification, mental or moral, was necessary to the man who had "INTEREST." Capt. Corbyn was a relative of the Commissoner, Mr. Maingy.

It may be asked again, why was not the conduct of this Assistant Commissioner investigated before? The reply again is "INTEREST." No amount or kind of iniquity would damage a man with "the powers that be," so long as he had "INTEREST;" always excepting the unpardonable sin of taking Government money. Captain Impey had some fifty Karens in jail against whom there was not even a charge found, but that was not as much as a peccadillo. It was taken to prove that he was a capital thief catcher.—

But when he borrowed one or two thousand rupees from the treasury, though a few days after the discovery he had the cash to replace it, he was driven, like Nebuchadnezzar, to make his dwelling among the beasts of the field.

If our condemnation of the things that were is strong, our commendation of the things that are is not less strong. Colonel Phayre will not allow a Karen to be wronged if he knows it. No ruler could make more strenuous efforts to render equal justice to all, and to promote the best interests of the people in his charge than our present Commissioner. And during the whole of the administrations of Mr. O'Riley and Capt. D'Oyly in Toungoo, I never heard a complaint uttered against either of them. The charge of their favouring the Burmese in preference to Karens, so often brought against some officers, never passed the door of a Karen's lips. The Karens learned to look up to these gentlemen as their protectors and friends, as much as to the missionaries; and the Burmese being shrewd enough to observe that any imposition upon them would not be countenanced, never gave them the slightest annoyance during all the years they were in office. When the missionaries first came up to Toungoo, and the native preachers went into the jungles, the Burmese began to threaten the Karens if they established schools and embraced Christianity; but Mr. O'Riley told them that they should have freedom to worship God as they chose, and learn to read their own books; and the Burmese seeing that he was in earnest, ceased their opposition. On one occasion, in a case in court, the Karens who were innocent parties, would have been probably caught in the meshes of their antagonists, by artful cross-questioning, had not Capt. D'Oyly interfered and saved them. It was under his rule too that the Karens were first allowed a strip of land on the Sittang river, and the privilege of keeping a boat of their own, like the Burmese, to cross it. Before the English took the country, the Karens had been often reduced to slavery by means of Burmese traders, who in the betel-nut season crowded into the jungles, and entrapped the Karens into debt by their tempting wares; but Mr. O'Riley forbade their going without a written permission, and he never granted them contrary to the wishes of the Karens. But perhaps the most salutary regulation which he made, was to require them to bury their feuds, and to begin anew with the introduction of letters. This is the true scriptural basis, and the only one on which we can hope to build with

permanency. Both these officers won the love of the Karens by their courtesy. To be called a dog or a hog in court, as they sometimes are, is as annoying to a native, as to a European. On my return from America, the Karen preachers told me, that Mr. O'Riley when he travelled among them, rested on the Sabbath, and "he behaved just like a teacher." So, when Capt. D'Oyly made his eastern trip, "why!" exclaimed one of the Chiefs with delight, "he sent back all his Kolahs and Burmese, and let the Karens do every thing for him." Col. Phayre's excursion to Bangalee will long be remembered by the Karens as the occasion when their little children shook hands with the Mengyee; the great ruler that would not allow his followers to take any thing from them, on any terms, until he was made acquainted with the transaction; and for the more substantial boon of giving them magistrates from their own nation. Up to that period they had been under Burmese myo-okes, but Col. Phayre signalized his visit among them by relieving them of their Burmese magistrates, and conferring the office on two Karens; one of whom is thus honorably mentioned in his last report. In previous reports it has been recorded that Government Agents had been appointed among the Karen tribes in the district of Toungoo, to induce them by moral influence to abandon their wars upon each other, and to set free their slaves. Capt. D'Oyly, who was in charge of the Toungoo district during the past year, reports that the Agents, both of whom have embraced Christianity, have faithfully performed their duty and exercised their influence for good.

The following instance is given of the excellent management of one of these men in a case of difficulty: "In the spring of 1857 an attack was made on the villages of Ma-tso, "by their old enemies from Bagyee and Tseekay-yua, in "which a number of captives were carried off from Ma-tso. "The quarrel appeared a serious one, and I proceeded at "once to a spot between the two belligerent villages. The "Tsau-kays, (Chiefs) on both sides appeared, and it was "finally arranged that both parties should abide the arbitra-"tion of a Karen Agent, who may be selected by myself. "To Quaylay (one of the Agents) was committed the "delicate task of settling a quarrel in which both parties "took such an earnest and fierce interest. He was, I "rejoice to add, completely successful. The parties were

"satisfied with his decision, and have remained at peace "ever since."

Our present Deputy Commissioner, Capt. Lloyd, is urging forward with his characteristic energy, the work of raising up the Karens, which his predecessors have so well begun. He has decided that they shall have their lands near the city for paddy cultivation, that had been previously promised, but of which some of the subordinate officers have endeavoured to deprive them; and he has so inspired them with confidence, that he has been enabled to form a Karen corps, a thing that all the knowing ones have declared from time immemorial to be impossible; and no inconsiderable element of his success is that he has taken a Karen teacher and is acquiring their language.

Every one, who has read history thoughtfully, must be satisfied, however, that there is no substantial progress in nations without Christianity. Sift out the seeds of true religion from our educational course, and we reap Na-na Sahibs. There is no hope that Burmah will differ in the future from Hindustan, unless man's savage nature is brought in contact with the transforming power of religion.

Protestant Christianity was first introduced into Pegu by Messrs. Marsden and Chater, of the Serampore or English Baptist Missionary Society in 1807. On reaching Rangoon, they found "the Government spoken of by every one they consulted, as exceedingly tolerant in religious matters, and as by no means likely to interfere with attempts to convert its subjects to the christian faith; the climate was extolled as the best in the world; and the dearness of provisions was the greatest disadvantage spoken of. They found a Roman Catholic Mission established at Rangoon, the priests in connection with which treated them with great civility."*

The following year, Felix Carey, the son of Dr. Carey, a medical student, took the place of Mr. Marsden, and introduced vaccination. In 1809 a Mission house was built, to defray the expenses of which, in part, a thousand rupees were contributed by the few British residents in Rangoon. The same year, Mr. Chater began "to preach, or rather catechise in Burmese."

In March 1810, Messrs. Brain and Pritchard, of the London Missionary Society, arrived in Rangoon, intending to found a new Mission in the interior, but Mr. Brain died

* See Oriental Baptist, March 1854.

in July, and Mr. Pritchard removed soon after to Vizagapatam. Near the close of the year, Mr. Chater visited Serampore, where he carried through the press two Burmese tracts; one of which contained 136 pages of extracts from the Old and New Testaments. Mr. Chater was again in Rangoon in 1811, when he completed a Burman translation of Matthew.

In 1812, Felix Carey visited Serampore, when "having carried part of the Gospel of Matthew, and of his Burman Grammar through the press, he left the latter to be completed under the superintendence of his father." This grammar is, considering the circumstances, decidedly the most remarkable work that has yet been published in Burmah. After the typographical errors are corrected, it is still the best grammar that has been written on the Burmese language. It has an appendix of nearly all the monosyllabic verbal roots in the language, amounting to upwards of a thousand, defined in English, with the Burmese synonymes; a tract of more than a hundred pages, that has scarcely been superseded by anything that has been since written.

In 1813, "Mr. Carey received a summons from the Court of Ava to proceed thither without delay;" and Mr. and Mrs. Judson reached Rangoon four days after Mr. Carey left for Ava. The American Mission to Burmah commences from this date, and its history has been so often written that it will be only necessary to notice here its prominent points. Mr. Carey was sent by the king of Burmah in a diplomatic capacity to Calcutta, and he resigned the Mission to Mr. Judson.

In 1816, the American Baptists sent Mr. Hough to the help of Mr. Judson, who being a printer as well as a preacher, and having had printing materials given him at Serampore, introduced the press into Burmah, and printed several tracts and portions of the New Testament in Rangoon.

In 1819, the first Burman convert was baptized, and few years have elapsed since, that more or less Burmans or Talaings have not made a profession of Christianity by baptism. Nearly three hundred have been baptized in Rangoon, some fifty or more in Aracan, between twenty and thirty in Tavoy, and a dozen in Mergui; there was a church of fifty Talaings at Amherst, and about three hundred Burmese and Talaings have been baptized in Maulmain. Since the occupation of Pegu, a Burmese church of thirty mem-

bers has been formed at Henthada, and the churches of Prome and the neighbourhood number more than a hundred communicants. Finally, there has been a small church in Ava for about a dozen years, among whose members was the head of the King's palankeen bearers.

These figures prove that "six months in Burmah" errs when he says: "The Burmans have ever, with a few exceptions, turned a deaf ear to the Christian teachers." Dr. Kincaid writes recently from Prome:

"We have Burman converts in eleven villages; Karen converts in three, and eleven converts in one village. Besides, in these and many other villages are earnest inquirers, and also believers not yet baptized. In two other Burman villages I had expected to baptize several converts this week, but a small stream, now swollen into a vast volume of water, stopped me in my course.

"Last week I was in a place where there were about three hundred Karen families and more than that number of Burman families. I spent four days, and had preaching morning, noon and night, and conversation with large groups the whole day. Two native preachers aided me in this work; the last evening some thirty-five or forty remained till near midnight, about an equal number of Burmans and Karens. In the morning I baptized two Burmans who had been believers for several months.

"This morning two *Cheens* called and remained two hours. Both are fine looking men, but one is a chieftain, and has several villages under him, about thirty-five miles east of Prome, and they both heard the gospel some weeks ago, and now listened attentively. On leaving, the chieftain said, 'Teacher, my heart takes hold of this doctrine, and I wish to get all my people, men and women, together, to hear this doctrine and see if it *hits* their hearts. I think it is what we want.'

"But this is only one of a hundred. Three weeks ago I was in a Cheen village about fifty miles north of Prome, and preached in a Christian house—the man, his wife, and eldest son, about twenty years old, are Israelites indeed. A Burman village was near by, and some of them believe. It was past midnight when all had left; three native preachers were with me, and by turns we preached and sung and prayed, and reasoned. The Cheen woman said she wanted to hear all night. She is a noble specimen of a woman. She told me, she prayed especially for two things, the conversion of her own children and the conversion of two or three females who lived near her.

"The Cheens are a people remarkably like the Karens in their traditions and social habits. Perhaps, originally, a branch of the same great family. There are over two hundred villages of this people in the Prome province, and then on north for five hundred miles, they are found in endless numbers, along the eas-

tern slopes of the *Yama* mountains, and their villages extend far into the plains. The work of grace has begun among them, and we hope ere long to have at least two or three so instructed in the history and doctrines of Christianity that they can carry the gospel to their own race in their own language. Their conversion would be as rapid, no doubt, as that of the Karens. They are to all appearance a prepared people. A school is now needed to instruct the converts and fit them to stand firm in the Gospel and to labor for their countrymen. The means to accomplish this must be obtained by another year.

"In March I spent several days in Ava. The little church there has been much scattered by the removal of the ancient capital some seven miles further north; the expense of this removal has entailed a heavy loss on all classes; over forty thousand workmen were employed by the king in rebuilding, and the pressure will be felt for years. In addition to this, the civil war in China, and especially in Yunan, a large province of twenty millions bordering upon Burmah, has seriously affected Ava, and all trade is broken up. Still there are many inquirers in the royal city. There are disciples and inquirers, also, in four other cities between Ava and Prome."

As these sheets are going to press, Dr. Kincaid in a letter to the author remarks: "I have letters from two of our preachers at Thayet and Meaday, giving an account of the baptism of six converts, and one of them a young man from Salo, a large city one hundred miles below Ava, and having a superior education and fine talents. I have a Cheen hamlet gathered near Prome. Fifteen families and numbering seventy-seven souls, all nominally Christian, seventeen have been baptized, and one I have employed for more than a year partly studying and partly as an assistant going among the Cheen villages. Two other Cheens will soon be so far instructed as to be able to go in the name of Christ among their own people. Here is a beginning, and I hope much for this people."

It is a popular error to attribute a great disparity of success to the different sections of the mission to Burmah; the comparison being always to the disadvantage of the Burmese department; for if we estimate the effects by the amount of error irradicated, and the difficulties overcome, it will probably be found, that in proportion to the labour bestowed, as much has been accomplished among the Burmese, as among the Karens. The faith of a Burman is the faith of a man, welling up from the deeps of his mental faculties; but the faith of a Karen, is the faith of a child

with no deep roots in the understanding. The Karens are, like the Samaritans, who at the first hearing "with one accord gave heed unto those things which Philip spake"; but the Burmese are like the Bereans who "searched the scriptures daily whether those things were so." On one occasion, I was present when Dr. Judson baptized two Burmese men, and he remarked to me: "I baptized one hundred Karens when I worked among them before Karen Missionaries were sent out, and these two Burmans have cost me more labour than the whole of that hundred Karens did." The first Burman I baptized had his attention drawn to Christianity by a tract that fell into his hands, and he kept reading and thinking to himself for two years before he called on me, and we had to converse and discuss every point of the Christian system and every doctrine of Budhism, a whole year, before he could fully accept the offer of a free salvation, but from the time that that point was reached, there has been no more faltering. He *knows* in whom he believes.

The Burmese and Karens differ no less in their mental attainments, than in their physical powers, and measure of civilization. A well-read Burman has a mind like a schoolman of the middle ages. A repository of obsolete metaphysics, and exploded science. A Karen knows nothing, but he acquires knowledge as readily as an Anglo-Saxon, detects a sophism as quick as a master of arts, and requires the reason of things like one rooted and grounded in Euclid. When a Burman has a little money to spare, he builds a kyoung, or he gambles, or he buries it in a chatty beneath his hearth stones. A Karen, in like circumstances, buys himself shoes and stockings, pocket handkerchiefs and English umbrellas. A Burman, whatever his gains, is content with the same ungainly saddle and bridle that his fathers used; but so soon as a Karen has a pony, he sees the superiority of a European saddle, and seeks to obtain one. Who ever saw a Burman woman on horse-back? But the Pant Bghai Karens, whom the Burmese call *ayaing*, or "wild men," were taking up a subscription, when I was in their midst a few weeks ago, to purchase a lady's saddle for their teacher's daughter.

Whether the Karens shall or shall not become a civilized people, is simply a question of whether they are, or are not to have the necessary culture to make any uneducated people such. The anxiety of the young teachers at Toungoo to

obtain information far exceeds any thing I ever before witnessed. During the three or four weeks spent with our Associations, whenever I sat down to eat, they were always more or less around me seeking information on difficult subjects; and when I strolled into the forest at evening, a long peripatetic train questioned me at every step. Sometimes I would seat myself to rest on a granite rock, overtopping the plains thousands of feet below, when all around would quietly seat themselves, a crowd of young men, with their open Testaments—each eager to ask me concerning some passage or other which he found difficult to comprehend. ....Some have chronological difficulties to settle; others ask for historical information, and still others have numerous inquiries to make on the natural productions mentioned in the Bible; while not a few have questions to ask which Gabriel himself could not answer. Thus a single lecture is diversified like mosaic with theology and botany, exegesis and zoology, metaphysics and lightning wires, history, sacred and profane, geography, ancient and modern, with a sprinkling of almost every other subject of the past, the present and the future. After lying down to sleep, I often hear the younger teachers inquiring of their seniors the signification of various passages, and asking information on numerous topics on which they have been instructed. In this way the knowledge communicated to one is passed on to tens, twenties and thirties, and my school of theology is as wide as the Province, and its pupils as numerous as the ministry within its borders.

The Karens are remarkable above all other nations among whom Missionaries have gone, for their readiness to help to educate themselves. Twenty-three churches in Tavoy, and Mergui, support their own pastors and village schools; fifteen in Amherst Province, do the same in whole or in part; and there are fourteen congregations in Shwaygyen who support their preachers and school teachers. At Henzada there are twenty-nine churches founded on the self-supporting principle; and in 1856, the contributions from the Rangoon congregations were stated to average more for each member, than Christians in America give for benevolent objects.

Mr. Beecher, of the Bassein Mission, writes in his last report:

"'The prophet Isaiah, in pourtraying the progress of the gospel in heathen lands exclaims: 'The wilderness and the solitary

place shall be glad for them, and the desert shall rejoice and blossom as the rose.' It is hardly twenty-five years since the first ray of gospel light pierced the thick darkness of idolatry and superstition, which shrouded the various tribes of this Province in hopeless gloom. Now may be found, in almost every section of it, Christian villages with their chapels and school-houses, where the institutions of the gospel are regularly observed, and where very many children of Christian parents receive the elements of a Christian education. One of the larger and more advanced of all these villages is that at Kotsoe, the place of our recent meeting. It is situated about six miles, in an easterly direction, from the town of Bassein. Ten years since the place was a dense jungle. It is only by contrast that the village is now at all interesting or important. But when we consider that fifteen years since there could not have been found in all this Province a *Karen* village that numbered ten houses, that wherever a circle of five or six families built their frail habitations, they built them with utter disregard of regularity, having regard as much for the accommodation of the domestic animals as for the human occupants—it affords no small gratification to the Christian Missionary, and no light testimony in favor of the gospel, now to find a village of forty houses built in a regular and substantial manner and adorned with thriving fruit trees."

With fifty-two stations, embracing 5378 church members, the contributions were:

"To the Bassein Karen Home Mission,	Rs. 1258
In support of pastors, in money and paddy, equivalent to	3737
Expended upon chapels, ...	1420
Paid to their village school teachers, ...	826
Paid in aid of the normal school, ...	793
Paid in aid of their poor, ...	289
Total, Rupees	8323

"This exceeds the amount reported at the meeting last year, by a little more than three thousand rupees. About 700 pupils from these churches have been under instruction in our village and other mission schools during the past year."

This trait of Karen character is remarkably illustrated in the history of the introduction of Christianity into Toungoo. The name of Christ was first heard in the Karen jungles near the close of 1853, and yet during the last associational year which closed in Febuary 1859, the Karen Christian villages numbered one hundred and thirty four, each village supporting its own school teacher, which at an average of five rupees per month amounts in the agregate to upwards

of eight thousand rupees per annum. There are no data to estimate the expense of building the village school-houses, but we know that for carpenters' wages on two only, one thousand rupees were expended last year. For the normal schools in the city, thirteen hundred and fifty rupees were contributed in money, besides considerable paddy; and three hundred rupees were brought in to pay for painting the posts of the Female Institute building. Within a year and a half the Karens have paid about seven hundred and fifty rupees for books, and more than twelve hundred and fifty for European and American medicines. To THEODOXA.

The Toungoo Karens have distinguished themselves above all others by their patronage of female education. The following extracts are from one of Mrs. Mason's articles on the subject:

"There is nothing that will so stir the spirit of an Englishman as an appeal to his sense of honor, and in this human nature is the same, whether in the isles of the West, the plains of the Ganges, or the mountains of Pegu. In Burmah, no appeal to self interest will move to action, if it touches not the native sense of honor. The poorest Burman will walk off and forego his supper rather than endure a single word wounding to his self respect. So with Karens; you appeal in vain to their fears or love of gain. Therefore, in proposing a school to the mountain chiefs of Toungoo, I appealed to this innate self respect, simply telling them they would have the honor before all the surrounding nations of educating their women like the greatest nations in the world, and they should have the honor of doing it themselves, in a kyoung of their own, only government would help them to begin. Besides, it would be pleasing to the great God whom they had determined to serve.

"The plan of the undertaking struck them favorably at once, but the idea of making it a girls' school, was by no means popular for a long time. When the chiefs did take hold, it was with enthusiasm, and mountain echoed to mountain—'Come to the work,'—as they rushed down through roaring torrents and swollen streams, over rocks and rapids, to the number of two hundred. Then dashing into the jungles, they felled the trees, tore up the thorn bushes and high elephant grass, and there we met and organized the *Karen Education Society*, to take charge of a FEMALE INSTITUTE for all their tribes. The plan was then an *experiment*, but no experiment ever succeeded more perfectly, for it has united these wild clans under one banner, and awakened a spirit of enterprize and energy such as they never before felt or knew.

"This Society at first numbered only sixty chiefs, but it has increased to two hundred and sixty, from six different clans, with a Board of Managers composed of one from each of the tribes; and thus far they have been more than faithful to their promise.

"Since the school was opened in 1857, the chiefs have contributed Rs. 2,945 in money, bamboos 11,700; ratans 25,000; thatch 2,070; bark rope 225 lbs.; mats 130; fowls 250; eggs 500; besides 40 baskets of rice; several pigs and goats; 75 articles of clothing of their own manufacture; and 10,008 days of work on the school grounds and buildings. All this voluntarily, and all the tribes working together.

"By the invaluable aid which the Commissioner gave to this Society in teak timber, a large two-storied teak school-house, one hundred feet long by fifty-seven wide, has been nearly completed for it. The spacious grounds given by government have been cleared three times, roads made, gardens planted, and a guard village of Karen cultivators from the hills established around it. A good bell has been secured for the Institute, with all needful apparatus and furniture. A small vernacular and English library has been obtained; and the school, averaging fifty young girls, all over twelve years of age, has been taught by myself for three successive sessions and part of a fourth; until the interest has become so intense, that the chiefs call for teachers from the Institute in every direction. Even the Pant Bgais, who at first so strongly opposed, now come four and five days' journey for them, and promise them a handsome support if they will not engage elsewhere. Those who have been longest in school have now twelve of these branch-schools in the mountains, which they instruct during vacations.

"Support for an English teacher has been guaranteed for this school, and her passage paid from the United States; and now this Karen Female Institute, will be cherished as the Delphi of the tribes to which they even now continually resort, and from which they cannot return without carrying to their pinnacle-homes some glimmerings from the light of science."

The example of the self-supporting system at Toungoo is being felt in "the regions beyond." A tour was made last dry season to the Western Red Karens; and a native teacher has been placed there. The Sau-bwa, Ke-pho-gyee, writes me recently:

"You have sent teacher Shapau to me, and I rejoice exceedingly. As the Pakus support their teachers, so will I, and furnish him his food. Teacher Shapau is now *my* teacher. If I eat, he will eat; if I starve, he will starve. You have sent him to me, and I have received him. Have no anxiety for him.

"I promised you when you were here to build you a dwelling. I have done so. I have been faithful to my word; and I feel

mortified when I see you are not in it. Do not be anxious about the people learning to read. I will most certainly have my children and grand children learn. At present they are very busy in their fields, but after harvest they shall study in earnest, and even now they study whenever they can command the leisure.

"When the dry season arrives, I wish very much that you and the teacheress would come out here, for my people greatly desire to see you. You came once, and my people said, 'The teacher has a good heart.' You are the man to suit me. If you come, let me know the time, and we will come to meet you. And when you come, do not trouble yourself about eatables. I will provide you with food.

"Pray for me that I may become a christian. May God bless the teacher with happiness!"

Since writing the above, the old gentleman has awoke to the importance of female education, and has sent in for two female teachers from Mrs. Mason's school. "Frenchmen," said Buonaparte, amid the atrocities of the French revolution, "Frenchmen need mothers;" and the Sau-bwa sympathises with him, knowing that the Red Karens will never leave off their cruel forays till they have mothers to nurse them with the milk of human kindness. Had Nana Sahib's mother been educated in a christian school, the diabolical deeds of the Sepoy rebellion might never have been enacted. The chief of a civilized Indian tribe in North America making a speech at the public examination of their Female Seminary, said: "When we begin white man's custom, we like green-horn woodman. We hitch on to the tip-top. We drag and drag, but just as we get good hitch up, and stop to breathe, down go old hemlock following the butt end as hard as it could to the bottom of the Allegany. So we begin books. We build big house, we call boys, we make learn till all come out like white man's boys, and chief very proud. Then boys say, 'Where our wives?' They look, they see only ignorant squaw. Then they say, 'What for study?' Ignorant squaw no love books. She love big moose, big deer. Then chiefs say, 'We no pull this way, We hitch the other end.' Then we build bigger house. We put in all girls. Then up come the hemlock, for Indian Indian brave say, 'He now study.' Brave not know books, squaw not know brave."

It is our custom to form the churches of each district into an Association, and each church and congregation sends delegates to an annual meeting, where statistics are collect-

ed, and matters connected with the prosperity of all are discussed. The last meetings furnished the following statistics:

Toungoo Statistics, February 1839.

Associations,	2
Stations,	134
Ordained native ministers,	3
Preachers and teachers,	134
Baptized last year,	1096
Excluded,	8
Suspended,	54
Restored,	51
Died,	108
Present number,	3628
Churches,	77
Schools,	134
Pupils in school,	2232
Christian families,	3364
Estimated christian population,	26079

The happy impression made on disinterested observers respecting the advancement of education and christianity among these mountains clans, will appear from the following report made to Government by Col. A. P. Phayre, Commissioner of Pegu.

"The mountainous country of the Toungoo district east of the Poungloung river, in which the Karen tribes reside, extends over an area of about 2000 square miles. It is bounded by the line of the British frontier with Burmah on the north, along the parallel of 19 deg. 29 min. north latitude, on the south by the river Youk-thwa, which divides it from the Martaban Province; on the east by the country of the independent Red Karens, and on the west by the lowlands skirting the Poungloung river. Within the above tract of country dwell the several tribes distinguished by the Burmese under the general name of Karen. These tribes, though acknowledging a relationship to each other in race, yet bear separate distinctive names for themselves. Their dialects, in some instances, differ from each other, so as to render communication between the tribes nearly as difficult as if the languages were altogether distinct. The following are the names of the several tribes or clans within the above tract of country:

1. Paku,
2. Maunie Pagha,
3. Bghai, divided into two sections,
4. We Wau,
5. Sgau,
6. Mopgha,

and one or two more not yet satisfactorily ascertained.

"It is impossible to give an accurate return of the numbers of these people, but they may be stated generally to be about fifty thousand, of whom over twenty thousand souls are either professed christians, or under christian instruction and influence. They are scattered over mountains which rise to 5000 feet above the sea. Their villages seldom contain more than 30 to 40 houses. Their cultivation, like that of all the Indu Chinese mountaineers, is carried on, not by terracing the hills, but by cutting down the forest on the mountain sides; burning the whole mass of timber and grass, and then sowing the seed in the ground among the ashes.

"As the next rain washes away the fertile vegetable soil, a crop cannot again be raised on the same spot for some ten or fifteen years. Each village, therefore, requires a wide extent of mountain land in order to have a rotation of cultivatible spots. This method of cultivation acts as a bar to the progress of the people, since they are engaged in a constant struggle against the forest; but there appears no prospect of any immediate improvement being effected in this respect.

"Up to the year 1853, the several tribes, and it may even be said the different villages of the same tribe, lived in a state of enmity and actual warfare with each other. By open force, or by stealthy manœuvre they would capture women and children and sell them as slaves to other tribes; while they generally put to death all grown up men who fell in their power. These predatory habits still exist more or less among those tribes who have not accepted christianity.

"In my annual administration report I have narrated how, by the unwearied labors of the Rev. Dr. and Mrs. Mason, of Sau Quala, and other Christian Karen teachers, from the Tenasserim Provinces, Christianity has been introduced among these tribes; how their languages have been mastered and reduced to writing, and how religion and education have simultaneously wrought a vast change in the habits, the feelings and the hearts of these wild mountaineers.

"The Government have been pleased in past years to make grants in money to Dr. and Mrs. Mason for the translation of books and for the building of the school for Karen females at Toungoo. Having now been present at the meeting in a central mountain village of a considerable number of people from all the tribes; an annual gathering held to recount their past proceedings; to compare their progress and to animate each other to future effort; having witnessed this deeply interesting meeting, I deem it my duty to report for the information of His Excellency the Governor General in Council the result so far of the work which has been going on among these people.

"Their educational institutions are closely connected with their village or clan system. Each village community constitutes a church or congregation in itself. Among the Sgua, Maunie-pgha,

Paku and We Wau tribes, there are fifty-eight stations or churches. At each village there is a teacher and a school. The teachers are generally young men of the tribe who have been selected and instructed under the care of the Rev. Dr. Mason. The village teacher is not in all cases an ordained minister, but he it is who conducts the public worship, and is also the school master. In each village a church is erected, and the school is held in the same building At those villages which I have visited, these mountain places of worship were neat wooden buildings, with a house adjoining for the minister or teacher. All are built at the expense of the people, and the teacher is entirely supported by the same means. I need hardly add that it is a completely voluntary system. A bamboo fence, put round the church and the teacher's or minister's dwelling, separates them from the rest of the village.

"Among the other tribes, namely the Bghai, and Mopgha, there are sixty-two stations, or parishes, as they may be termed, which I am informed are provided for in every respect as above described.

"In January 1859 the Paku association of all the churches belonging to that and some adjoining tribes, held a meeting at which I was present. It was at a village named Baugalee, situated on a fine commanding position, at some three thousand feet elevation, with forest clad mountain all round. There were about 700 or 800 people present, men, women and children. The Rev. Dr. Mason, with several Karen ministers and teachers, occupied a central platfrom of bamboos, slightly raised above the ground. Around the platform, under the shade of a temporary shed of bamboo, were the Karens, seated according to their tribes and families, clad in their picturesque national dress, and with intelligence and deep interest in the objects for which they had met, beaming in their faces.

"The business of the meeting commenced with a hymn and with prayer, both in the Karen language. The Karens have naturally a taste for melody, and the soft sounds of their language are well adapted to vocal music. Several of the young Karen ministers and teachers successively addressed the assembly in earnest language, exhorting the people to make increased exertions to educate their children, to support religion, to procure Bibles, and to be careful of them when they had them. One read a paper containing a brief account of the illness and death of a brother Pastor, who had lately died. Several of the chiefs also briefly addressed the meeting, exhorting the people. Finally, it was announced that the associated churches had subscribed over five hundred rupees towards the support of the central schools at the town of Toungoo, where both boys and girls are educated more highly than can be done in the village schools. They are there trained as teachers for the village schools."

"It was a wonderful sight thus to behold in the midst of an assembly of tribes so lately savage, and with no written language, the evidence of a people appreciating the benefit of religion and of education, supporting pastors and schools, listening to speeches on social improvement and religious duties, delivered by men of their own race in their own tongue, abandoning their evil habits and their cruel wars, and living as quiet, industrious mountaineers, anxious for improvement. I was surprized at the youth of some of the teachers, and more also at the respect and attention shown them by many of the chiefs. This is the more remarkable, as we might almost have looked for jealousy from the latter at their own influence being impaired. It is not so, however. Dr. Mason has found, as was to be expected, that young people were more readily impressed with new ideas than those advanced in life, and has employed young men as teachers, while their education ensures them respect and influence among both chiefs and people.

"Though the people support their village teachers and schools, and will, and do, also support those youths who go to study at the normal schools in town, yet it is beyond their means to defray all the expenses of the latter institution. I was present at an examination of the girls of the Female Institute at Toungoo, by Mrs. Mason. Fifty were present. They appeared to acquit themselves creditably in Geography, Arithmetic, and other branches of knowledge. To show what a change education has wrought in the opinions of these people generally, I may mention that in the absence of regular teachers in the more remote villages, some of the chiefs have applied for young women from the Institute to instruct the children of their tribe. This fact, showing a disregard for all previous prejudices—for they heretofore considered women only as useful drudges to the lords of creation—evinces the wonderful change effected in their habits of thought.

"I have entered into these details of the progress made among these tribes in order to lay clearly before the Governor General in Council, my reasons for making application for further grants towards supporting and extending education among them. On this subject, I beg to annex copies of two letters to my address, one from Mrs. Mason, dated the 13th of January 1859, and one from the Rev. Dr. Mason, dated the 21st idem. Both ask for assistance for the Normal School for Karen young men established at the town of Toungoo.

"Hitherto the Government has contributed as follows towards education among the mountain Karen tribes; Rs. 2000 for the translation and printing of useful works in the Bghai and Maunie Pagha dialects, and Rs. 1400 for books, apparatus, &c., for the Karen Female Institute; a grant of land at Toungoo has also been made for erecting the building.

"With reference to the present application by Dr. and Mrs. Mason, I beg earnestly to recommend that the Hon'ble the President in Council will be pleased to sanction a grant towards the young men's Normal School; a school which is to fulfil the important object of furnishing instructors to the various tribes scattered over the mountains. The great importance of aiding the Rev. Dr. and Mrs Mason in affording these young men a liberal education, through whose agency these tribes may be raised from the depths of ignorance and barbarism to have hereafter, it is hoped, a prominent place among Asiatic races; the great importance of aiding in this noble object, requires not a word from me to recommend it. I shall content myself therefore with stating that many tribes still remain to be recovered from barbarism, and recommending as follows:

"*First.* That the sum of Rs. 3000 be granted towards the building at Toungoo of a School House for the Karen young men. This building is proposed to be of brick, and one hundred pupils are to be educated therein.

"*Second.* That I be authorized to indent for, or otherwise procure, for the said school the following instruments:

1. A Telescope on stand of sufficient power to observe the eclipse of Jupiter's Satellites.
2. A Sextant and artificial horizon.
3. A pair of Globes, one foot in diameter.
4. A prismatic Compass and chain, complete.
5. A set of School Maps."

However it may be in other parts of India, this document proves that the Government of Pegu is a Christian Government, ready to do all it consistently can for the progress of sound education and evangelical religion. ESTO PERPETUA.

The influence for good that Pegu exerts on Burmah Proper is too great to be passed unnoticed. Never in the records of history was the Burmese government administered so equitably as now; never had Burmah a monarch that endeavored to do justice so unfeignedly as the present. Dr. Dawson, who has had favorable opportunities for observation, writes from the capital:

"We were called to have a friendly interview with his majesty at the water-palace. Here he expressed himself most feelingly upon a variety of subjects. Referring to the difficulties of his position, and his sincere desire to be on terms of peace and friendship with other nations, he intimated a strong wish which he entertained of having an American consul appointed to reside at his Court. He requests that a good man might be sent; a man of talent and of 'good temper,' who could, if he chose, conduct mer-

cantile pursuits, and be at the same time a medium of communication between himself and the government of the United States.

"In some respects the king spoke on that occasion like a real christian philosopher; like a man possessing good, sterling common sense, who was deeply imbued with the responsibilities of his exalted position, and desirous, so far as he was able, as the king of Burmah, to discharge his duty towards his country, and to live at peace with the rest of the world. I was gratified and delighted to hear an expression of such noble sentiments, uttered personally by his majesty.

"Towards foreigners of every shade and class, the government is as friendly and considerate as can reasonably be desired. In every way, the policy and temper of the king is not only conciliating, but might be termed generous. Two facts furnish an insight into the disposition and heart of his present majesty. About three years ago, an Englishman commenced business on an extensive scale at the capital. He dealt chiefly in teak timber; and as all branches of trade are more or less under the immediate direction of the government, the person referred to had large financial dealings with the Burmese court. In the midst of a most promising career, the merchant was suddenly removed by the hand of death. His plans were thus frustrated before any thing could be realized by his exertions. His estate became involved in difficulties, which resulted in his poor widow and four orphan children being left without a penny. The case came to the knowledge of the king; and in the most delicate and honorable manner he sent the suffering English family a gift of ten thousand rupees. and a batch of choice timber, which was worth twelve thousand rupees in the market of Rangoon. This generous act was done without the least motive of ostentation, and without any design to secure publicity. But the widow herself and her orphans have mentioned it at Rangoon, where they reside, and thus a noble deed will not be allowed to pass forgotten into oblivion.

"The next instance is that of a donation from his Burmese majesty, for the relief of the sufferers by the late mutiny among the native troops in Bengal. Hearing that a subscription was being raised in their behalf, he forwarded an order for ten thousand rupees to be paid in Calcutta. Compared with the wealth possessed by the sovereigns of Europe, the king of Burmah is a poor man; but his generous donation to the fund for the relief of European sufferers, is equal in amount to the subscription sent by the sovereigns of England and France to the Sultan of Turkey.

"Such, too, is the man, with whom the 'war party' in Pegu, connected with the 'just and upright English government,' wish to pick a quarrel. But the king has too much good sense to allow himself to become embroiled in difficulties with his neighbors. To all intents and purposes he is emphatically a peace man, and

so are the prime minister and other members of the present Burmese Court.

"So anxious is the king and his royal brother, the prince, to introduce public improvements, which have proved so advantageous to other countries, that he has recently purchased and set up a steam engine, to which pumps are attached for the purpose of raising water with which to irrigate the fields. He has encouraged European mechanics and engineers to come and make their home in his capital. There are now two Eurasian engineers, a road-maker, boat-builders, merchants and traders residing here, while formerly there was but one European at the capital.

In regard to order, quiet and the public peace, this city is as free from all rowdyism, public turbulence and street broils as many of the cities of enlightened Christian nations, if not freer. It is as creditable to the people as to the government, that it is so. Of course, there are thieves here, as in all other countries in the world. The pockets of ladies and gentlemen are picked every day in the streets of London, under the very eyes of one of the best constituted police forces in the world. It would therefore be too much to expect, that the Burmese should be found to be exempt from crimes of that nature.

"There are now two river steamers belonging to the king, anchored as near the city as they can approach. These make trips occasionally down to Rangoon, when there is sufficient depth of water to enable them to do so. All who wish can come up as passengers in them, and I believe no charge is made for the passage. Besides, a regular communication is kept up with Rangoon by dâk boat, and all letters and papers are conveyed for the community free of expense. A boat leaves about once in ten days, and pushing along rapidly as it does, reaches its destination at Rangoon in eight days. It remains there about three days, and returns to the capital again in from twenty-two to twenty-five days. As may be supposed, this arrangement is a great favor and public convenience to all classes of foreigners residing in this city."

"It is said," writes a correspondent, "the king of Burmah has intimated his approval of all religions in his dominions, and that hereafter no one is to be molested for becoming a christian." If this be true, then is the king of Burmah in advance of all the kings of continental Europe, and, for religious freedom, stands up alone among crowned heads side by side with Queen Victoria.

Carriages blown before the steam, night illuminated by lighting up the unseen air, letters borne on the lightning's wing, and pictures drawn by a dash of the sun's beams, are not the only marks of advancement in the nineteenth cen-

tury. There is as much onward and upward progress in the moral as in the physical world. It requires the eye of science to fully see, and suitably appreciate its progress. The masses read of the discovery of new planets, but it takes an astronomer to measure the field of recent discovery that led to them; children look with admiring eyes into the stereoscope, but it is only the optician who sees the principles of double vision that taught its formation. So with progress in the moral world. Every reader understands the figures in statistical reports and church records; but he who has an eye for moral science sees far beyond and below them, and beholds a mighty stream of onward progress with a volume as large and a current as strong, as is seen by the man of science in the advancement of physical knowledge.

God made a single acorn and wrapt up within it all the oak forests that cover the earth. This is God's uniform method. He creates a seed which infolds all the future trees of the tribe, down to the end of time. Yet open a seed and nothing may be visible to the naked eye but one uniform mass of white flesh, or albumen. Look at it again through a magnifier, and the root and leaves of the future tree may often be distinctly seen in miniature, rolled up in the seed-coat; and it is only from the deficiency in our vision that the whole produce of the seed is hidden from our eyes. It is all visible to the eye of God, and he gives us a photograph from his own vision of the undeveloped oak, when we read: "There were great voices in heaven, saying the kingdoms of this world are become the kingdoms of our Lord and of his Christ; and he shall reign forever and ever." To this the whole world is tending as certain as that the earth whirls on its axis, or sweeps around the sun; and as clearly as the astronomer sees the onward progress of the planets, in their apparently retrograde motions; so clearly does the Christian see the onward triumphs of truth, where to other eyes a retrograde movement may be only visible.

It is no new thing for nations to change their gods. The polished Greeks and intelligent Romans did it; the rude Goths and wild Vandals did it; and it has been quietly done in India more than once. The opening sentence in the Veda, the Bible of the Brahmins, is *Agnimile*, "Fire I praise; and in the fifth verse, *Devo devebiragamatu*, "Come O God! with the gods;" yet fire has long been without a

niche in the Hindu pantheon. Wearied with the worship of the elements, the heavens and the earth, the sophists of India, many centuries after the Vedas were written, devised the well known metaphysical Brahm, a god unknown to their ancient scriptures, of whom creation is deemed an emanation; but he has not a temple left. The common mind passing from one extreme to the other, has gone over from a highly refined intellectual system to the most grossly sensuous religion that has ever been professed by man. Gaudama, representing the sceptical class, dissatisfied with all these devices, rejected the idea of an intelligent first cause and creator altogether, and taught that all things have their origin in *awizza*, or ignorance. Perception he said was an intellectual mirage, and nothing exists out of the imagination; that all things are subjective, nothing objective.

While tossed on this ocean of error, without compass or chart, the mind of man is made for the evangelical doctrines of the Bible, and it is not satisfied with any thing else. The one is the correlative of the other. Light is not more adapted to the eye, than truth to the human mind. After the thoughts of a thinking man have been tossed between scepticism and sensualism for a dozen or twenty years, when through the grace of God the full blaze of truth bursts upon his soul, he enters into rest. "This is truth," says consciousness, in as certain terms as a geometrical demonstration or a logical syllogism. A man may be sincere in Brahminism, Budhism, or Scepticism, still he walks with uncertain steps, like a person in the dark. The consciousness of the sincere responds to error, like the oracles of the Greeks, in ambiguous language; but to truth the answer is like the Saviour's "Yea, yea, or nay, nay." If a heathen could say, *Magna est veritas et prævalebit*, who cannot join with unfaltering faith in the ceaseless refrain,

THY KINGDOM COME!

CATALOGUES.

Had the republic of letters a king to decree the mode of Romanizing Burmese names, it would be a great convenience. As it is, every one does what is right in his own eyes, and that is almost certainly wrong in the eyes of his successor. We have in succession, *nioun*, *nyaung*, *nyoung*, and *gniaung*, for the generic name of the *Ficus*,* one of the most common words Anglicized. In turn the same vowel† has been represented by *ee*, *e*, *ay*, and *ae*.

The different spelling of the same name has often led to preposterous mistakes. From the Catalogue of articles, sent from Burmah to the great exhibition, published in Calcutta, it appeared that duplicates, and even triplicates of the same wood were sent to London as products of two or three different trees. For example, we read: "*Ban-boay*, a kind of Mimosa—*Bhan-bhway*, like sisso—Careya sphærica, *Bambooce*." All three are one and the same tree disguised by the English dress of the Burmese name; and it is not *Careya spaerica*, but *Careya arborea*; which has been also called *Banbwai*, and *Banbwae*. Again, "*Toungbien*, a strong heavy wood, probably a kind of teak"—*Toung-bhian*, light porous wood like jarrool—*Toung-byeng*, a kind of saul but of a red colour." These three names and descriptions, all refer to *Artocarpus echinatus*. *Pyeng-khado* is described as one tree, and *Pyengadean* as another, but they differ only in their Anglicized Burmese names.

It is very desisable to adopt the system of spelling native names in English used by the Asiatic Society of Bengal, but the printing offices on this coast do not possess the necessary type; and hence a system has been adopted in the following Catalogue more in accordance with English spelling.

kh	represents	*h*	aspirated Bur.	ခ။
hs	"	*s*	" "	ဆ။
ht	"	*t*	" "	ထ။
th	"	*th*	in the	သ။
gn	"	*gn*	as pronounced in the German	
a	"	*a*	as in father	[word *gneis*.
e	"	*e*	" them.	
ee, *ie*	"	*ee*	" thee.	
ei	"	*ei*	" gneiss.	
ă	"	*a*	" fate, Bur.	ဧ။

* ညောင်း † ဧ။

ai followed by a consonant, represents	*i*	as in strike, Bur.	ခိုက်။
ai final	"	*ay*	" ray	"	ခဲ။
ay	"	*ay*	" "	"	ဆယ်။
o	"	*o*	in note		
u followed by a consonant,	"	*u*	" rung		
u final	"	*ew*	" few		
oo	"	*oo*	" tool, Bur.		ဖွ။
wo with final consonant,	"	*oo*	" " "		ဒွန်၊ ဒွတ်။
ou	"	*ow*	" frown		
au	"	*aw*	" law		

IN THE VOCABULARY,

e	represents the	continental sound.
u	"	
eu	"	

The Burmese like the Greeks, change some of the consonants in the formation of words for the sake of euphony; but in Greek the change existed in the written as well as in the spoken language, appealing to both the eye and the ear; while in Burman the change is confined to the vocal language exclusively, and can be only recognized by the ear. In representing Burmese words by English letters, great confusion has arisen by spelling words sometimes as they are written, and sometimes as they are pronounced.

In the following Catalogues the Burmese names are represented as they are pronounced, and hence it becomes necessary to indicate the principles, that have governed the departures from the forms of the written words.

A Burman root or syllable beginning with any letter but a flat mute, on taking an additoinal syllable beginning with a smooth mute, and occasionally with an aspirated one,* change it in pronunciation, when the first root is not a verb, to its corresponding flat mute; as :

ကင်းကော၊	*ken-kau.*
ကြီးကန်း။	*kyee-gan.*
စပါး၊	*sa-ba.*

*က, စ, ဋ, တ, ပ, Smooth mutes.
ခ, ဆ, ဌ, ထ, ဖ, Aspirate "
ဂ, ဃ, ဇ, ဈ, ဍ, ဎ, ဒ, ဓ, ဗ, ဘ, Flat "

တပ္ပတ်။	*ta-bwet.*
ကနဓိုး။	*ka-na-zo.*
ပတောက်။	*pa-douk.*
ပေါက်ပန်း။	*pouk-ban.*
မင်ကူး။	*men-goo.*
ရင်းတိုက်။	*yen-daik.*
ရှာစောင်း။	*sha-zoung.*
လင်ကုံ။	*len-gung.*
အာသာဝတီး	*a-tha-wa-dee.*
သပြု။	*tha-byu.*
ရေဖြူး	*yæ-byoo.*

There are some exceptions to this rule, the most important of which is, that when the first syllable ends in a smooth mute, that of the affixed root remains unchanged ; as :

လက်ပန်း။	*let-pan.*
ငှက်သစ်တောက်။	*hgnet-theet-touk.*
စစ်စလီ။	*seet-sa-lee.*
တနတ်စား။	*ta-nat-sa.*

This exception is an illustration of the principles that prevail in the euphonic changes in Greek, in which it is a rule that smooth mutes must be joined to smooth, flat mutes to flat, and aspirates to aspirates. In Greek however when a change occurs, it is made in the last syllable of the root, the syllable affixed remaining unchanged, the reverse of what occurs in Bŭrman. In Sanscrit as in Greek the mute changed is that of the last syllable, but the change is carried farther ; the last latter being often exchanged for one of the same class as that of the letter which follows.

When three smooth mutes occur, the second is changed to a flat mute, but the third remains unchanged ; as :

ပစ္စနိစိတ်။ *pa-zwon-seik.*

When a name is formed from a verb and noun, the rule is not intended to apply ; as :

ပိုးစား၊	*po-sa.*
ရွှေကျဉ်ပေါက်၊	*rwet-kya-pen-pouk.*

A final nasal before a smooth mute is changed to that mute, or that mute is heard in pronunciation ; as

စကား။	*sag-ga.*
မနှက်ညှီး။	*mag-gyee.*
ပန်းတိုန်း။	*pad-daing.*

Before a flat mute, a final nasal is changed to the nasal of the class to which that mute belongs; as

သင်္ဘော *them-bau.* စံပယ် *sam-pay.*

A similar permutation occurs in Sanscrit and Pali; and *n* followed by *b* is pronounced *m* in Arabic.

NATIONS.

TALAINGS, PEGUANS, OR MOANS.

Burmese Tribes.
Burmese,
Aracanese,
Mugs,
Kanyans,
Toungooers,
Tavoyers,
Yaus, or Yos, or Jos, or Quois,
Zebeings, or Yebains,
Pyus,
Kados,
Danus,

Shan Tribes.
Shans, or Tai,
Lao, or Laus, or Lawa, or Wa,
Paloungs, or Paloas,
Phwons, or Mwoon,

KAREN TRIBES:

(*a*) *Sgau Tribes,*
Sgau,
Maunepghe,
Paku,
Wewa,

(*b*) *Bghai Tribes:*
Tunic Bghai,
Pant Bghai,
Lay may?
Manu-manau,
Red Karens.

(*c*) *Pwo Tribes:*
Pwo,
Shoung,
Kay, or Ka,
Taru, or Khu-hta,
Mopgha, or Ple-mau,
Hashwie?
Toungthu,
Khyen, or Kayn, or Chin?

(*d*) *Shan Karens:*
Yen, or Yein,
Yenseik,
Yingbau,
Pandung,
Toungyo,
Black Karens.

Miscellaneous Tribes.
Ka-khyens, or Kakoos,
Kamis, or Kemees,
Kyaus,
Koons,
Sak,
Mru,
Shendoo,
Selung.

KARENS.

The Karen churches at Bassein sent two of their number to explore the region north of Ava, and since the first part of this work left the press they have returned. Mr. Beecher writes me: "They proceeded as far as Bamau [about lat. 24" 25' N. or two degrees north of Ava and one degree east]. They made diligent inquiries on the way wherever they found Burmese respecting the tribes in those regions, but found none who could speak Sgau, Pwo, or Burman, except the Burmese themselves, and at Bamau, the Burman is not spoken more than some other languages. They could hear of no tribe that had much resemblance to the Karens to the west or north of Bamau; but were told that the Karens were to be found farther to the east. The tribe that bore the nearest resemblance to the Karens was the Kakhyens, a tribe that has never been subdued to Burmese will, though they are nominally tributary to the King of Ava. In fact the the Burmese at Bamau, and in all that region, are in great dread of them on account of their savage ferocity in kidnapping and selling into slavery the neighbouring tribes, with whom they keep up a constant warfare.

"Our missionaries did not succeed in getting to any of the Kakhyen villages, and saw but few of them in town; and those they did see were such a drunken, wild, and filthy set of fellows, that they could not get at all acquainted with them; and all warned the Karens against going to their villages unless they could first get acquainted with some of those who come to town. From all we can learn, our most intelligent Karens are inclined to think them a tribe of Bghais."

Whatever the Kakhyens may prove to be, one valuable addition to Karen lies in the recognized fact at Bamau, that they are found east of that city. Mr. Tracey, who crossed the country from the Salwen to Ava, writes: "I do not know to which race the Karens on the Nat-teik* belongs to. They are handsome, but dark and slender. The women wear a long frock like the white Karens, but of a dark red colour." The dress is decisive against their being Red Karens. It has been stated that there are no Karens within one hundred miles of Ava, but the pass of Natteik, where Mr. Tracey bought water of Karen women who brought it there to sell to travellers, is only fifty miles south east of Ava.

"South of these," continues Mr. Tracey, "on the edge of the Table Land, west of the Lake Nyoung Ywe, are the Lway-lohug Karens. They dress like and are doubtless a branch of the Red Karens." This locality is about two degrees north of Toungoo.

* See page 96.

"South of these," he adds, "say west of Mobya, are the Ying-ban, whose dress and language are also similar to the Red Karens." These are about one hundred miles north of Toungoo.

South of Mobya are the Taru or Khu-hta, the most northern tribe with whose language we are at all acquainted, and they speak a dialect of Pwo. On both sides of the English boundary of Toungoo are the Kay, or Ka, whom the Burmese denominate Gay-kho; and they speak another dialect of the Pwo.

South of these again, stretching from the Sitang to the Salwen, are the Bghai, speaking two distinct dialects, Bghai, and Red Karen; both more nearly related to the Sgau than the Pwo; there being no final consonants in either.

South of the Bghais, are the Mopghas, or Ple-mau, a tribe of Pwos again, and south of the Mopghas are the Pakus, a branch of the Sgau. Next follow the Sgau Proper, and on approaching the sea-board, Pwos and Sgaus are found mingled more or less together, from Bassein to Mergui.

We are acquainted with *nine* distinct Karen dialects, all of which may be resolved into two, the Pwo and the Sgau. The following select vocabulary, used by the correspondents of the Asiatic Society, contains specimens of each, all written down by the author from the lips of natives belonging to these several tribes.

VOCABULARY.

English.	*Sgau.*	*Pwo.*	*Bghai.*
Air	Kalie	Lie	Kalie.
" coup.	Thanghau	Lang	Waythra.
And	Dau	Day	Lay.
Ant	Teu	Htung	Teu.
Animal	Taphotakha	Hseuphohseukha	Taypheutayway.
Arrow	Pla	Phla	Play.
Bad	Eu	Eung	Kiekay.
" coup.	Thau	Thaung	Meulay.
Beautiful	Akhieala	Akhieala	Apeubayaghawe.
Bee	Kanay	Ne	Kane.
Believe	Na	Nay	Nay.
" coup.	Soo	Soo	Zoo.
Belly	Heupheu	Ghoophong	Kaphoo.
" coup.	Heukho	Thaphong	Thaphoo.
Bird	Hto	Hto	Htubapheu.
" coup.	Lie	Lie	Htubashay.
Bitter	Kha	Kha	Khay.
Black	Thoo	Theung	Lay, or thieche.
Blood	Thwie	Thwie	Thwie.
Boat	Khlie	Khlie	Khlie.
" coup.	Hto	Htaung	Kapay.

English.	*Sgau.*	*Pwo.*	*Bghai.*
Bone	Khie	Khwie	Khwie.
Book	Lie	Liek	Sai.
Bow			
Boy	Phothakhwa	Phothakhwa	Pheuthaykheu.
Brass	Tobau	Htoungbang	Kreba.
Bring	Has no independant root, but is made from two signifying literally *come-carry*.		
Broad	Lay	Lay	Khau.
Buffalo	Pana	Pana	Panay.
Burn	There are several specific words for this generic one.		
By. Ins.	Leu	Leu	Lay.

English.	*Red Kar.*	*Kay.*	*Taru.*
Air	Kaylya	Ren-yu	
" coup.			
And	Da	Dyeu	
Ant	Teu	Hteu	
Animal		Htoo-pho-htoo-yeu.	
Arrow	Pra	Pla	
Bad	Hwa-kha-kay	Kie-ka	
" coup.			
Beautiful	A-to-a-rea	Phouk.	
Bee	Ka-ne	Nie	
Believe	Soo	Na.	
" coup.	Pe	Zoo.	
Belly	Kaphu	Pho	Fo.
" coup.			
Bird	Htu, Hto	Htu	Hto.
" coup.			
Bitter	Khay	Kha.	
Black	Lau	Louk	Tyeung.
Blood	Thwie	Htwie.	
Boat	Than-khlie	Reu.	
" coup.			
Bone	Krwie	Sweit.	
Book	Lie	Lie	Lie.
Bow	Khie	Tsheu.	
Boy	Pray-khu	Pay-say Pie-sa-pro-khu.	
Brass	Htay	Khyay-bong.	
Bring.			
Broad		Lay.	
Buffalo	Pa-nay	Pa-na	Pa-na.
Burn		Ku-khrau.	
By. Ins.	Deu	Dyeu.	
Ascend	Htya	Htang	Htang.
Bamboo	Va	Hwa.	

English.	*Mopgha.*	*Toungthu.*	*Remarks.*
Air	Lalie	Talie	Siam, *Lon.* Koreng, *Tinghuu.*
" coup.	Lay	La	Bur. *Lay*, Talaing *la.*
And	Hten	Htung	
Ant	Tafeutakha		
Animal			
Arrow	Pla	Tla	Koome, *pal*, *a*Shan, *pen.*
Bad	En	Kay	Compare Greek *k a k ì a*
" coup.	To		
Beautiful	Akheaghaughe tara		
Bee	Lane		
Believe	Nam		
" coup.	Num		
Belly	Pan		
" coup.	Teubo	Awa	Limbu, *bu.*
Bird	Teuba		
" coup.	Kha	Kha	Bur. *kha*, Shan *khou.*
Bitter	Tuk	Phren	Shan *lau.*
Black	Sweit	Thwe.	Tibeten *thak.*
Blood	Hlick	Phre	Bur. *hlay.*
Boat			This couplet signifies by itself *a raft.*
" coup.	Hteu		[*kweh.*
Bone	Khie	Hsot	Shan *sot*, Chin. *kuh*, *a*
Book	Sa	Sa	Bur. *sa*, Talaing, *lpik.* Chin. *shoo.*
Bow			Bow differs from boat in the intonation only.
Boy	Feuta		
Brass	Teugwa	Toung	Brass and copper are made from the same generic root with the adjective yellow and red affixed.
Bring			
Broad	Lay		
Buffalo	Lana	Pana	
Burn	Which one could be compared with the other voca-		
By. Ins.	Lay	bularies is impossible to conjecture.	

English.	*Sgau.*	*Pwo.*	*Bghai.*
Call	Ko	Ko	Yeu
" coup.	Yu		
Cat	Thamieyau	Meinyau	Mieyaukau.
Cheek	Bo	Nopahtie	Bau
Child	Photha	Photha	Piesaypeu.
Chin	Kha	Kha	Khay.
Cloud	Taeu	Hseueung	Tayeu.
Cold	Gho	Ghaung	Wau

English.	*Sgau.*	*Pwo.*	*Bghai.*
Come	Hay	Ghay	Le, or ge.
Country	Kau	Khang	Ka.
Copper	Toghau	Htoungwau	Krieba.
Cow	Klau, or po	Khlau	Peu.
Crooked	Ke	Kaing	Ke.
Crow	Sauwakha	Kla	Sowa.
Dark	Khie	Khie	Khie.
Daughter	Phomu	Phomu	Pheumu.
Day	Nie	Nie	Nie.
" coup.	Thau	Thoung	Thay.
Deaf	Nataeu	Naeung	Naykootaeu.
Deer (samber)	Takhau	Hseukhau	Kheu.
Demon	Tana	Hseuna	Taynay.
" coup.	Tawie	Hseupho	Taykaphoo.
Die	Thie	Thie	Thie.
Dig	Khoo	Khung	Khoo.
Dog	Htwie	Htwie	Htwie.

English.	*Red Karen.*	*Kay.*	*Taru.*
Call	Hie, ay	Ka	
Cat		May	
Cheek		Kha-bau	
Child	Pray-say-phu	Pie-sie	Fau.
Chin	Kha	Kha-klie	
Cloud	Kay-eu	Kay-u	
Cold	Tay-rau	Kay-rau	
Come	Ha	Le	
Country	Kye	Kay.	
Copper	Htay-lie	Khyay-lie	Kye
Cow	Po, or pu	Phouk	
Crooked	Ka	Ke	
Crow	Sau-ray	Sa-wa	
Dark	Khye	Ka-lung	
Daughter	Phoo-pray-mau	Phwo-mo	
Day	Ne	Neu	
" coup.			
Deaf	Khay-lay-ta-eu	Ne-ko-eu	
Deer (samber)	Kheu	Chau	
Demon	Tay-nay	Ta-na	
" coup.			
Die	Thyie	Theu	
Dig	Hsau	Khwa	
Dog	Htwie	Htwie	Shwie.

English.	*Mopgha.*	*Toungthu.*	*Remarks.*
Call	Zeu	Tom	Chin. *yerich.*
" coup.			
Cat	Miezau	Nyoo	Chin. *miau.*
Cheek	Bo		
Child	Feu		
Chin	Kha		Sans. *chivi.*
Cloud	Taeu		The *ta*, *hseu*, *tay* prefixed to this and many other roots is the same formative particle.
Cold	Ghau	Khwa	Shan. *kat.*
Come	Hay	Lon	Chin. *lay* and *krvoh.* The Bghai has no distinct word for come, but uses *le* go, or *ge* return, for it.
Country	Kho		
Copper	Kriebo	Htoung	
Cow	Peu	Phou	Comp. *peu* with *bos.* Tibetan *ba.*
Crooked	Kay	Nga keu	
Crow	Sagwa	Zanká	
Dark	Khie		
Daughter	Feu meu		
Day	Ne	Ya	Bur. *ne* Bur. *yet*, embraces both the night and day.
" coup.	*To*		This coup. embraces the Bur. *yet.*
Deaf.	Nalaeu		
Deer (samber)	Hseu		
Demon	Tana		
" coup.	Tapoo		
Die	Tei	The	Chin. *se.*
Dig	Khau		
Dog	Htwie	Htwie	Mru. *takwie.*

English.	*Sgau.*	*Pwo.*	*Bghai.*
Drink	Au	Au	Au.
Duck	Htode	Htohta	Oopayde.
Ear	Na	Na	Naykoo.
" coup	Nu	Noug	Naykau.
Earth	Haukho	Ghangkho	Lakheu.
East	Muhtau	Muhtaung	Muhta.
Eat	Au	Ang	A
Egg	Die	Die	Die
Elephant	Kahsau	Kahsaung	Kasha
Eye	May	Me	Meuladoo.
End consume,	Leu	Louk	Leu.
Enter	Nu	Nu	Nu.

Fat	Bau	Baung	Bau.
Father	Pa	Pha	Pa, or ta.
Flat	Beba	Papay	Bieba.
Fever	Nyagho	Hsooghouk	Shwie, or shoo.
Few	Sgha	Sha	Shie.
Fight	Du	Du	Du.
Fire	Meoo	Meeung	Me.
Fish	Nya	Ya	Tapeu.
Finish	Wie	Ghoung	Wa.
Form, make	Te	Taing	Bau.
Flower	Phau	Phau	Phau.
Fly	Yu	Yoo	Wie.
Foot	Khau	Khang	Kha.
Forest	Pgalakla	Meinglakla	Sapoklay.
Frog	De	De	De.
From	Leu	Leu	Leu.
Give	He	Pe	Ie.
Go	Lay	Le	Le.

English.	*Red Karen.*	*Kay.*	*Taru.*
Drink	O	Hwo	
Duck		Wom-bay	
Ear	Khay	Ne-ko	Na
" coup.			
Earth	Hay-khu	Hay-khu	Hang-kho
East	Ple-htie	Meu-htang	
Eat	E	Ay	Ang
Egg	Die	Daik	Die
Elephant	Ta-sha	Htsang	Hsaung
Eye	May	Mie	May
End, consume	Louh	Leung	Loo
Enter	Neu	Neu	
Fat	Beu	De	
Father	Phay	Pha	Pa
Flat	Bay	Bie	
Fever	Shwie	Shwie	Shwie
Few	Shie	Shie	
Fight	Hsa	Dyeu-da	
Fire	Me	Me	Mie
Fish	Tay-phu	Ta	Ta
Finish	Wa	Beung	
Form, make	Dya	Boung	
Flower	Pho	Pho	Phang
Fly	Yeu	Yu	
Foot	Kha	Ka-ku	Hang
Forest	Mie-klay	Mie-la	
Frog		Deik	De

From	Deu	Dyeu	
Give	Die	Pe	Pe
Go	Seu, or Su	Le	Lay

English.	*Mopgha.*	*Thoungthu.*	*Remarks.*
Drink	Oo	Awa	
Duck	Haupay		
Ear	Na	Na	Singpho *na.*
" coup.	Nu		
Earth	Hau feu	Hamtan	
East	Meuhto		Lit. *sun-ascend.*
Eat	Au	Am	The Sgau *eat* and *drink*, are distinguished by inonation.
Egg	Dei	Die	Mru. *dui.*
Elephant	Lahso	Hsan	Shan. tsang. Chin. *siang.*
Eye	May	May	Shan. *matta*, Chin. *moh.*
End, consume	Veu		
Enter	Lieum		
Fat	Bay	Bay	
Father	Pa	Pha	
Flat	Bayba	Sampya	
Fever	Shwie		
Few	Sha		
Fight	Du		
Fire	Meouk	Me	Botia. *me.*
Fish	Za	Hta	Shan. *pa* Chin. *yu.*
Finish	'Wa		Chin. *wan.*
Form, make	Bu		Chin. *tuon.*
Flower	Foo	Heu	Limb. *phu.*
Fly	Fu		Chin. *fei*
Foot	Khau	Khan	Tibetan *kang.* Foot and leg are made from the same root.
Forest	Khuklava		
Frog	Dei		
From	Leu		
Give	He	Pha	Shan. *pan.* Bur. *pay.*
Go	Le	Lway	Sunawar *lau.*

English.	*Sgau*	*Pwo*	*Bgnai.*
Girl	Pothapom i	Phothamu	Piesaypheupheumu
Coat	Maytaylay	Be	Paykolay
God	Yuwa	Yuwa	Tayuwa.
Gold	Htoo	Htaung	Htway.
Good	Ghe	Ghe	We.
Guide	Sgheu	Thoung	Thay.
Great	Do	I o	Deu.
Hair	Khothoo	Khothoo	Kheuloo.

Hand	Su	Su	Su.
Happy	Mu	Mu	Mau.
Hard	Ko	Naung	Ma or ko.
Head	Kho	Kho	Kookeu.
Hear	Nahoo	Nagheung	Shaunay.
Heart	Tha	Tha	Tha.
Heaven	Mookhoo	Mookhoo	Maukheu.
Hell	Lara	Lara	Khauwayma.
Here	Phayie	Htaungyo	Dauyeu.
High	Htau	Htau	Hteu.
Hog	Hto	Hto	Htau.
Horn	Neu	Nong	Neu.
Horse	Kathe	Kathe	Thie.
Hot	Ko	Kho	Keu.
House	Hie	Ghaing	He.
Hunger	Tathawie	Hseuthawie	Taythawie.
Husband	Wa	Wa	Wa.
In	Leupoo	Leupeung	Leupoo.
Iron	Hta	Hta	Htala.
Ivory	Kahsaumay	Kahsaungmay	Kashathro.
Kill	Mathie	Mathie	Maythie.
King	Sakhwa	Sakhwa	Shaparga.
" coup.	Salong	Salong	Shadeu.

English.	*Red Karen.*	*Kay.*	*Taru.*
Girl	Pray-mau-pay-say	Pie-sa-pro-mo	
Goat	Pay	Phye	
God	Sau-pray-a	Teu-mau	
Gold	Htay	Hta	Hta
Good	Rea	Re	Rie
Guide		Theu	
Great	Doo	Doo	Doo
Hair	Kho-lya	Kho-louk	Khoo-lau
Hand	Su	Sa	Sa
Happy	Kay-mo	Phouk	
Hard	Ma	Shau	
Head	Hoo-krau	Ko-kwau	Khoo
Hear	Ne-hu, Nay-heu	Ne-hu	Na-ko
Heart	Thai	Tha	Ta
Heaven	Mau-kho	Mau-khu	Moo-khoo
Hell	Mau-ra-koo	Beu-su	Na-ray
Here	Bie-e	Be-yo	Teu-ie
High	Hteu	Htough	
Hog	Hta	Htouk	Hteu
Horn	Nau	Nu	Nung
Horse	Ta-the	Theik	Tie
Hot	Kai-ko	Ku	Kang-ko
House	Hie	The	Sun
Hunger	Thay-e	Htou wie	g-than-

Husband	Vay	Wa	Va
In	Ku	Ku	Phang
Iron	Hto-htay	Htla	Hta
Ivory	Ta-sha-ta-mya	Htsaing-meik	
Kill	May-thyie	Ma-thu	
King	Kho-kha	Sa-hwa	
" coup.			

English.	*Mopgha.*	*Thoungthu.*	
Girl	Feumeu		
Goat	Piekoolay	Bay	Shan. *pa.*
God	Layuwa		
Gold	Teu	Khan	Chin. *kin*, and *kum.*
Good	Ghee	Leu	
Guide	Vudz		
Great	Deu, and vu	Tan	Chin. *ta.* Tai *di.*
Hair	Feuhtook	Taloo	
Hand	Sook	Su	Chin. *syu.* Hand & arm are made from the same root.
Happy	Um		
Hard	Ma	Ma	Bur. *ma.*
Head	Feu, or kho	Katu	Bur. *khoung.* Shan *ho.*
Hear	Nohoo	Heun	
Heart	Ta		
Heaven	Maufeu		
Hell	Lara	Lara.	
Here	Phayie		
High	Hto	Hto	
Hog	Htook	Htau	Chin. *tehee.*
Horn	Nau	Nung	
Horse	Lagho	Tha	Botia *ta.* Aka. *ghura.*
Hot	Ko	Kheu	
House	Heik	Lam	Shan. *hien.*
Hunger	Tawaime	Hookho	
Husband	Wa		
In	Leupo	Poo	The *leu* precedes the noun, while *poo* is affixed.
Iron	Htala	Pathie	
Ivory	Lahsome		Literally, *elephant tooth.*
Kill	Mateik	Mathie	Literally *ma ke-death.*
King	Sobaro		Bur. *skenbuyen.*
" coup.			

English.	*Sgau.*	*Pwo.*	*Bghai.*
Kiss	Neumoo	Neungmeung	Numau.
Laugh	Nie	Nie	Dje.
Law, (moral)	Tatho	Hseuthaung	Tadauoo.
coup.	Tathau	Hseuthang	Shauoo.
" civil	Kwau	Khaung	Beu.

coup.	Beu	Htwe	Kwa
Lead	Pgha	Sha	Pa.
Leaf	La	La	Lay.
Little	Hsie	Pe	Shie.
Live	Moo	Meung	Thamo.
Lift up	Sauhtau	Hsahtang	Sahta.
Light	Kapau	Phang	Lie.
Lightning	Lauwaadie	Langwaadie	Lawanadie.
Lord	Kasa	Kahsa	Biesay.
Loom	Hta	Hta	Hta.
Long	Htau	Htau	Hta.
" distant	Yie	Yaing	Djie.
" in time	Yie	Yie	Djie.
Man	Pghaknyau	Heuphlong	Pieya.
" coup.	Pghathapleu	Heukhong	Pieyeu.
Medicine	Kethie	Thie	Thaukhwie.
Milk	Nuhtie	Mhte	Nuhtie.
Moon	La	La	Lay.
Morning	Mughau	Mughau	Muhau.
Mother	Mo	Mo	Meu.
Mountain	Kaseu	Kholaung	Khaumu.
" coup.	Kalo	Htounglo	Hhaulau.
Mouth	Htakho	No	Lamau.
Musquito	Paso	Paso	Paso.
Name	Mie	Meing	Mie.
" coup.	Tha	Tha	Thay.

English.	*Red Karen.*	*Kay.*	*Taru.*
Kiss	Neu-ho	Neu-prou	
Laugh	Nyay	Gna	Gna.
Law, (moral)	Tay-a-lya-a-gno	A-hwa-a-gnau	
coup.			
" civil	Shoo-beu	A-htse-beu	
coup.			
Lead	Prie	Pra	Pla
Leaf	Lay	La	La
Leg			
Little	Shie	Hsie	
Live	Htoo	Tha-moo	
Lift up	So-htya	Pau-htang	
Light	Lie	Kha	Lie
Lightning	Shie-lie-bau	Klau-mu-pha-lie	
Lord	Bay-say	Bghe	Pa-la
Loom		Hta	To
Long	Hto	Htu	
" distant	Ye	Yeu	
" in time		Hlei	

Man	Pray-ka-ya	Pra-ka-yong	Plu
" coup.			
Medicine	Te-koo	Ta-thu	Te-koo.
Milk	Nu-htye	Nu-sheu	Hyeung-hzeu
Moon	Lay	La	La
Morning	Moo-ro	Meu-ro	
Mother	Meu	Mu	Mo
Mountain	So	Khwau	Khaung
Mouth	Kha-oo	Kha	Gnwa-kho.
Musquito		Ka-poo-ta-yo	
Name	Mie	Mie	Myoung.
" coup.			

English.	*Mopgha.*	*Toungthu.*	*Remarks.*
Kiss	Neumuk		Literally *smell-happy.*
Laugh	Ne	Nga	Murmi *nga.*
Law, (moral)	Tato		
coup.	Tatau		
" civil	Beu		
coup.	Sheu		
Lead	Pgha	Soon	
Leaf	La	La	
Leg			See foot. Chin. *kiah.*
Little	Hseik		
Live	Moo, and liem		
Lift up	Sotau	Hya	Literally *carry-ascending.*
Light	Talapo	Htala	Bur. *len* Shan *len.*
Lightning	Lauwaadie		Lit. *the thunder flaps his wings.*
Lord	Lasa		
Loom	Hta		
Long	Htoo	Hto	
" distant	Tzes		Chin. *yuen.*
" in time	Tzes		Distinguished in intonation.
Man	Zezau, or plau	Lau*	Bur. *loo* Shan *khoung.*
" coup.			
Medicine	Kathie	Lateik	
Milk	Nuhteik		Literally *breast-water.*
Moon	La	La	Shan *leu.*
Morning	Meuwoo		
Mother	Am	Meu	Shan *amya.*
Mountain	Laseu	Koung	Chin. *khou,* and *hou.*
" coup.	Lalau		Simanes *khamta.*
Mouth	Htafeu	Proung	
Musquito	Laseu	Takhia	
Name	Em, or meik	Meing	Bhotia and Chin. *ming.*
" coup.			

* Read Peido, zezau, or Plau.

English.	*Sgau.*	*Pwo.*	*Bghai.*
Neck	Ko	Kho	Gau
New	Thau	Thang	Thay.
Night	Na	Na	Nay.
" eve	Ha	Gha	Hay
No	Tameba	May-e, or mway-e	Tamenau, or nau, or tamepato.
Noon	Moohtoo	Muhtang	Moohtiehta.
North	Kalieso	Liekhie	Kalieakhiesau.
"	Mukapa	Moopa	Mookapay.
"	Hsakahsau	Shakahsang	Shaykasha.
Nose	Nade	Na	Naykhede.
Of	A	A	A.
Oil	Tho	Tho	Theu.
Old (of things)	Laulie	Lauglie	Liela.
" (of persons)	Pgha	Sha	Pghay.
Paper	Sakho	Sakhou	Saykoo.
Plantain.	Thakwie	Thakwie	Ya.
" wild	Ya	Ya	
Poison	Su	Su	
Rain	Tahaysu	Hseuhseung	Waylesu.
Rat	Yu	Yu	Yu.
Raw	Thiekasay	Theinghse	Thietheu.
Red	Ghau	Wâu	Liekau.
Rice (paddy)	Boo	Boo	Boo.
" (cleaned)	Hu	Woo, or ghoo	Hoo.
" (boiled)	Me	Me	De.
Return	Ke	Htaing	Ge.
Ripe	Me	Meing	Mie.
River	Lo, klo	Lo	Lau.
Run	Sie	Saingtalaing	Sway.
Road	Klay	Pungtha	Klaypootha.
" coup.	Kapco	Pungthung	

English.	*Mopgha.*	*Toungthu.*	*Remarks.*
Kiss	Neumuk		Literally *smell-happy.*
Laugh	Ne	Nga	Murmi *nya.*
Law, (moral)	Tato		
coup.	Tatau		
" civil	Beu		
coup.	Sheu		
Lead	Pgha	Soon	
Leaf	La	La	
Leg			See foot Chin. *kiah.*
Little	Hseik		
Live	Moo, & liem		
Lift np	Sotau	Hya	Literally *carry-ascending.*
Light	Talapo	Htala	Bur. *len.* Shan *len*

Lightning	Lauwaadie		Lit. *the thunder flaps his wings*
Lord	Lasa		
Loom	Hta		
Long	Htoo	Hto	
" distant	Tzes		Chin. *yuen.*
" in time,	Tzes		Distinguished in intonation.
Man	Zezau, or plau	Lau*	Bur. *loo* Shan *khoung.*
" coup.			
Medicine	Kathie	Lateik	
Milk	Nuhteik		Literally *breast-water.*
Moon	La	La	Shan *leu.*
Morning	Meuwoo		
Mother	Am	Meu	Shan *amya.*
Mountain	Laseu	Koung	Chin. *khou*, and *hau.*
" coup.	Lalau		Simanes *khamta.*
Mouth	Htafeu	Proung	
Musquito	Laseu	Takhia	
Name	Em or meik	Meing	Bhotia and Chin. *ming.*

English	*Red Karen.*	*Kay.*	*Taru.*
Neck	kya	kau	
New	Thay	Tha	
Night	Nay	Na	
,, eve	Hay	Ha	Ha
No	Mha-to	Sa-mwe-koo	
Noon	Mu-htyeu	Myeu-tyeu	Mu-htang.
North	Plye-htye	Myeu-reu	
Nose	Kha-pheu	Ne-pho	La-fo-ta.
Of	A.	A.	
Oil	Thoo, htya	Beu	
Old (of things)	Lya	Yu	
" (of persons)	Pray	Pra	Pla.
Paper	Sa-koo	Se-koo	
Plantain	Die-kloo	Kwie	Gna.
,, wild			
Poison	Su	Su	
Rain	Kay-syu	Swie-se	
Rat	Yeu	Youh	
Raw	Sie-ta	A-tha-thung	
Red	Lie	Hiie	Lie.
Rice (paddy)	Byu	Beu	Bu.
,, (cleaned)	Hyen	Hoo	Do.
,, (boiled)	Die	Dei	Hzin.
Return	Ka	Zei	Htaing.
Ripe	Mie	Mie	
River	Klo	Lau	
Run	Klwa	Swa	
Road	Klya	Klay	

* Read Peido, Zezau, or Plau.

English.	*Mopgha.*	*Toungthu.*	*Remarks.*
Neck	Khau		
New	Tauk		
Night	Na		
,, eve	Ha	Ha	
No	Me-e or me-khay	Tamwateu	
	Mechtook		
Noon	Lalieso		Literally *wind-top.*
North	Meupa		" *sun-side* applied also to south.
,,			" *elephant-star* i. e. ursa major.
North	Nade		
Nose	A	A	
Of	Nayteu	Namau	
Oil	Leik		
Old (of things)	Pgha		
,, (of persons)	Sokeu		
Paper			Bur. *sekoo.*
Plantain	Lakwie	Gna	Shan. *hwa.*
,. wild	Za		
Poison	Khayhaysu		
Rain	Zu		
Rat	Siateu	Tathiet	
Raw	Wook	Tanya	Shan. *leu.*
Red			
Rice (paddy)	Beu		
,, (cleaned)	Huk		
,, (boiled)	May		
Return	Ga		
Ripe	Meik	Hm a	Bur. *hme.*
River	Loo		
Run	Sie	Lau	Chin. *tsou.*
Road	Peuta	Klaytan	
,, coup.			

English.	*Sgau.*	*Pwo.*	*Bghai.*
Round	Phleuthaleu	Talookoo	Phleu to hie.
Salt (noun)	Ietha	Htiela	Iethay, or ieta.
" (verb)	Hau	Ghang	Hay
Sand	May	Me	Thame.
Sea	Paulay	Panglay	Palay.
Separate	Pha	Pha	Pha.
Shame	Mayhsgha	Memay	Meuthawa:
Ship	Kabau	Kabang	Thaypau.
Short	Phu	Pie	Pheu.
Sick	Hsa	Hsa	Shay.
Side	Kapa	Ghupha	Kapay.

Silent	Bghau	Langmang	Sau.
Silk	Thato	Hto	Thaie.
Silver	Se	Se	Ho.
Sister	Daupuwaymu	Htungphuwemu	Thaypuwaymu.
Sit down	Hsenau	Hsenang	Shana.
Skin	Phie	Phe	Phe.
Sleep	Mie	Mie,	Shaumie.
Slow	Kayaukayau	Kyaukyau	Khaykhay.
Small	Hsie	Pe	Shie.
Smell	Neu	Neung	Nu.
Snake	Ghu	Ghoo	Woo.
Soft	Kapooloo	Phook	Kapeutaloo.
Son	Phokhwa	Phokhwa	Pheukheu.
Soul	Tha	Tha	Tha.
Sound	Thau	Thau	Thay.
Sour	Hsei	Hsaing	She.
Spirit	Kala	La	Kalay.
South	Kaliehtie	Liehtie	Kalieakhahtie.
,,	Maylaka	Hsanrung	
Speak	Kato, and po	Khlaing	Apo, & hie, & yie.
Say	Sie, and tay	Lau	Dau.
Stand up	Hseuhteu	Hseunhtung	Shauhteu.
Star	Hsa	Sha	Shay.

English	*Red Karen.*	*Kay.*	*Taru.*
Round	Phlau	Phlouk	Phlung.
Salt (noun)	Se-thay	Se-tha	
,, (verb)	Hay	Heing	
Sand		Yay	
Sea	Pa-lay	Palay	
Separate	Phay	Pha	
Shame	Tha-wa-la	Htoung-thara	
Ship	Thembau	Them-bau	
Short	Phu	Phu	
Sick	Shay	Sha	Sha
Side		Reu-pa	
Silent	Ta-bie	Nie-soo	
Silk	Ta-htoo	Lu-htu	
Silver	Roo	Roo	Kyeung.
Sister	Pu-vay-pray-mau	Pwo-or pro-mo	
		Way ,, ,,	
Sit down	Oo-nya-lya	Ie-nang	
Skin	Phie	Phie	
Sleep	Mye	Mie	
Slow	Syeu-tha-du	Tha-dau-tha-dau	
Small	Pa-te	Shie	Pe.
Smell	Neu	Neu	
Snake	Roo	Roo	Roo.

Soft		Kapeu	
Son	Phoo-pray-khoo	Pwau-khu	
Soul	Thay	Tha	Ta.
Sound	Pra	Prei	
Sour	She	Sheu	Hseik.
South	Plye-lya-shie	Myeu-ba	
Speak	Hie-bay	Ba-hswie	Tung-shwie.
Say	Dya-shoo	Sie	
Stand up	Ka-htau	Thau-hteu	
Star	Shay	Hsa	Hsa.

English	*Mopha*	*Toungthu*	*Remarks.*
Round	Htophlau	Tunglung	Bur. *lung.*
Salt (noun)	Deikta	Tatha	
,, (verb)	Hau		
Sand	Me		
Sea	Pole		Bur. *penlay.*
Separate	Pa		Chin. *peen.*
Shame	Maykya		
Ship	Thaybo		Bur. *thembau.* Tal. *kabang.*
Short	Pheu	Pu	
Sick	Hsa		Chin. *Syao.*
Side	Lapa		
Silent	Sau	Nging	
Silk	Lapfu & lahteu		
Silver	Seu, & theik	Rou.	Hindi *sid* Tal. *sraun.*
Sister	Htauphau-waymu		
Sit down	Hsaunau	Unglau	
Skin	Pahie	Phro	Chin. *pi.*
Sleep	Meik	Ping	
Slow	Khaykhay		
Small	Hseik	Pa	Chin. *Syao.*
Smell	Neu		
Snake	Ghuk	Hru	
Soft	Bok		
Son	Feuhwa		
Soul	Ta		Literally the *heart.*
Sound	Lalouk		
Sour	Shie	Hsya	Shan. *htsoi.*
Spirit	Lale		Chin. *ling.*
South			Literally *foot of the wind.*
,,			,, constellation of *the cross.*
Speak	Po	Ungdau	
Say	Tay		Shan. *sat, lat.*
Stand up	Sheuhteu	Unghtung	
Star	Hsa	Hsa	Chin. *sing.*

English	*Sgau*	*Pwo*	*Byhai*
Straight	Lo	Loung	Nar
Strike	Tau	Do	Peu.
Stone	Leu	Long	Leu.
Sugar	Iethahseu	Htielahseung	Iethayshie.
Sun	Mu	Mu	Mu.
Sweet	Hseu	Hseung	Shie.
Swift	Khle	Khliang	Pgha.
Sword	Na	Na	Dashe.
Tell	Sieba	Lauba	Daubay.
Tail	May	Me	Kame.
Take, seize	Hiene	Phoungpie	Piene.
,, coup.	Piekha		Piese.
,, away	Keso	Tainghso	Gesa.
That	Ane	Aynau	Anu.
This	Aie	Ayyo	Ayeu.
Thunder	Lauthau	Lanthay	Lathay.
Tiger	Khe, & botha-o	Khe	Khe, & taypoolie.
Tin	Pgha	Sha	Pabotha.
To	Hsoo	Leu	Seu.
Tobacco	Kathie & nya thoo	Kathio & yathoo	Kathie.
To-morrow	Khayghau	Kayghai	Kaumoohau.
Tongue	Ple	Phle	Ple
Tooth	Mai	May	Theumay.
Tree	The	Theing	Theu.
Ugly	Aghaueu	Aghaugeung	Akheu aghaukie-kay.
Understand	Napeu	Nathe	Naykoonu.
Unto	Tu, and hsoo	Htung, leu	Ta, tu, seu.
Wake	Phuthenau	Nangatha	Phuthenay.
Walk	Ha	Gha, & saing	Hay.
Wash	Thesau	Thieyahseing	Suba.
Water	Htie	Htie	Htie, and shu.
" coup.	No	Noung	

English	*Red Karen*	*Kay*	*Taru*
Straight	Sau	Hseu	Na
Strike	Meu	Htei	Van
Stone	Lau	Louk	Lung
Sugar	Le-thay-sheu	Se-tha-hsu	
Sun	La-moo	Myeu	Myung
Sweet	Sheu	Hseu	Die-u
Swift	Mau-mau	Khleing	
Sword	Nay	Ne-shei	Ta-hzyeung
Tell	Hie-bay	Sie-ba	
Tail	Ka-mie	Ka-me	
Take,seize	Phe	Pei-ne	

That	Deu-nu	A-o	
This	Aie	A-yo	
Thunder	Mau-krau	Keau-mu-ya	
Tiger	Khie	Khe	
Tin	Pay-bo	Pra-boo	
To	Deu	Dyeu	
Tobacco	Ta-re	She-la	
To-morrow	Pro-ta-ne	A-seu-pay	
Tongue	Ple	Ple	Ple
Tooth	Kho-khe	Tha-khe	Me
Tree	Thau	Theu	Teing
Ugly		A-khu-a.lau-sen-re	Te
Understand	Nay-heu	Na-theing	
Unto	Deu	Dyeu	
Wake	Thie-gne-thyana-nay	Chau-taung	
Walk	Hay	Hsa	
Wash	The	Su-blang	
Water	Htye	Sheu	Hseu
„ coup			

English	*Sgau*	*Pwo*	*Bghai.*
Wax	Kho	Kho	Khau
West	Munu	Munu	Munu.
Which?	Phaylayghalay	Htounglaghalay	Daulaypghaylay.
What?	Memunulay	Mayhseunaulay	Memanau and metraymay.
Why?	Bamanulay	Bahseunaulay	Baymanau, and.baytrayna.
Who?	Matataghalay	Paulaghalay	Pgha nautapghay nau.
White	Wa	Awa	Botha.
Wife	Ma	Ma	May.
Wind	Kalie	Lie	Kalie
With	Leu, and dau	Leu, & day	Lay.
Woman	Pomu	Heumu	Peumu.
Word	Takato	Hseukhlaing	Tayapo.
„	Kalu	Loo	Le.
Yellow	Bau	Bang	Ba.
Yes	Eu, or me	Eu, or may	Eu, or me.
Young	Thasa	Thabang	Thasay.
Year	Nie	Neing	De.
Yam	Nway	Nway	Nway.

English	*Mopgha*	*Toungthu*	*Remarks.*
Straight	Lo	Son	
Strike	Peu	Tway	Shan. *pautihn* Chin *ta.*
Stone	Louk	Lung	Lepcha, *long* Limbu, *lung.*

Sugar	Deiktahseu		Literally *sweet salt.*
Sun	Meu	Mu	
Sweet	Hseu	Neu	
Swift	Hle		
Sword	Lazau		
Tell	Poba	Thouthau	
Tail	May		
Take, seize	Siez	Khon	
,, coup.			
,, away	Gaso		Literally *return-carry.*
That	Leuba, leune	Tahsu	
This	Aie	Yo	
Thunder	Laupau		
Tiger	Tapaleik	Ka	Bur. *kya.*
Tin	Pgha	Rek	
To	Leu	Eu	
Tobacco	Lateik		
To-morrow	Khoumoogho		
Tongue	Ple		
Tooth	Swahteik	Tagua	Bur. *thwa.*
Tree	Te		
Ugly	Akheaghauta-ghe		
Understand	Anam	Thena	
Unto	Tu, leu		Chin. *tai.*
Wake	Phusenau	Ting	
Walk	Ha	Lay	Bur. *lay.*
Wash	Sesay		
Water	Hteik	Htie	Chins. shui.
,, coup.	Kha		Siam. *nam.*

English.	*Red Karen.*	*Kay.*	*Taru.*
Wax	Tra	Kra	
West	Ple-nu	Myen-lang	
Which?	Deu-pa-te	Ma-ta-pra-pra	
What?	Me-tie-te	Me-ma-ka-ma	
	Bay-tie-te	Ba-tra Ma-tra	Ma-ta-roo.
Who?	Pa-te	A-pa-pra	
	Me-o-pe.tupray		
White	Bo	Bo	Phoo
Wife	Mai	Ma	Ma
Wind	Kay-lya	Reu-yu	
With	Deu	Dyeu	Leu
Woman	Pray-mo	Pro-mo	Pa-mo
Word	Gno		
,,	Alya-agno	A-bwa, a-gnau	
Yellow	Bya	Bong	
Yes	Ma	Mwe	

Young	Thay-se	Tha-sa	
Year	Nei, na	Nei	
Yam	Kreu	Nway	Nwe

English	*Mopgha*	*Toungthu*	*Remarks.*
Wax	Khoo		
West	Meune		Lit. *sun-enter.*
Which?	Playlay plau-lay	Hsamaynay	
What?	Memanaylay	Hsomaynay	
Why?	Baymalay		
Who?	Plelaghalay Gwa	Pamaynay Bwa	Chin. *mut.*
White	Ma		
Wife			
Wind	Lalie		
With	Lay		
Woman	Feumeu		Chin. *myu*
Word	Laluk		
Yellow	Bo		
Yes	Eu, or me		
Young	Tasa		
Year	Nie, and de		
Yam	Nway	Nwa	

NUMERALS.

English	*Sgau*	*Pwo*	*Bghai*
One	Ta	La	Ta
Two	Khie	Nie	Kie
Three	Theu	Thung	Theu, or teu
Four	Lwie	Lie	Hwie
Five	Yay	Yay	Yay
Six	Khu	Khoo	Theutho
Seven	Nwie	Nwe	Theuthota
Eight	Kho	Kho	Lwie-ho
Nine	Khwie	Khwie	Lwiethota
Ten	Tahsie	Lahsie	Tashie
Eleven	Tahsieta	Lahsiela	Tashieta
Twenty	Khiehsie	Niehsie	Kieshie
Hundred	Takaya	Laya	Takayay
Thousand	Takahto	Lahtaung	Takahtau

English.	*Red Karen.*	*Kay.*	*Taru.*
One	Ta	Ta	A
Two	Ne	Neu	Ne
Three	Theu	Theu	Tun
Four	Lwie	Lwie	Lwie
Five	Nya	Gnei	Gnay

Six	Theu-tho	Sho	Hso
Seven	Theu-tho-ta	Nway	Nway
Eight	Lwie-tho	Shau	Hsoo
Nine	Lwie-tho-ta	Kway	Kwie
Ten	Ta-she	Sheu	She
Eleven	Ta-she-ta	Ta-sheu	
Twenty	Ne-she	Neu-sheu	
Hundred	Ta-yay	Ta-ya	A-ya
Thousand	Ta-htau	Ta-htau	A-lie

English.	*Mopgha*	*Toungthu*	*Remarks*
One	La	Ta	Tal. *mu-a*
Two	Schheu	Nie	Shan. *htsoung*
Three	Teu	Thung	Tibet. *sum*
Four	Lwie	Leet	Limbu. *lish*
Five	Zay	Gnat	Bur. *gna*
Six	Khu	Thu	
Seven	Um	Nwot	Limbu. *nush*
Eight	Kho	That	Lepcha. *kakeu*
Nine	Khwie	Koot	Shan. *kowt*
Ten	Lashie	Tasie	Chin. *shi.* The first
Eleven		Tasieta	root is *one*
Twenty	Schheushie	Niesie	
Hundred	Laza	Talyea	
Thousand	Lahto		

CATALOGUES.

PART 2ND.

MAMMALS—BIRDS—FISH—REPTILES—INSECTS—MOLLUSKS—CRUSTACEANS—ANNELIDA—RADIATES—MINERALS.

MAMMALS.

QUADRUMANA.

MONKEY TRIBE.

Hylobates Lar, Ogil. *White handed Gibbon.*
" hoolock. " *(Aracan.)*
မျောက်လွှဲကျော်။ *myouk-hlwai-kyau.*

Papio nemestrinus, Ogilby. *Pig-tailed Monkey.*
မျောက်ပတီး။ မျောက်နီ။ *myouk-pa-htie.*

Inuos leoninus, Blyth. *Red-tipped Pig-tailed Monkey.*
မျောက်နီ။ *myouk-nie.*

Cercopithecus cynomolgus. Ogil. *Fisher-monkey.*
မျောက်တဝါ *myouk-ta-gna.*

Macacus carbonarius.
မျောက်တဝါ။ *myouk-ta-gna.*

Mr Blyth says this is "the common long-tailed Macacus of the Burmese countries," and is nearly related to the preceding species, "but has no crest on vertex, and a blackish face with white eyelids."

Semnopithecus obscurus, Reid. *White-eyelid Monkey,*
မျောက်မျက်ကွင်းဖြူ။ *myouk-myet-gwen-phyu.*
(မျောက်ညှိ. *Tavoy. Aracan.)* *myouk-hnyo.* [*Monkey.*

Presbytes Phayrei, Blyth. *Phayre's white-eye-lid*

Nycticebus tardigradus, Wat. *Lemur or Bengal Sloth.*
မျောက်မောင်းမ။ *myouk-moung-ma.* (ie. monkey's concubine.)

Galacopithecus volans, Blyth. *Flying Lemur.*
မြောက်လျှောင်ပျံ *myouk-hloung-pyan.*
(i. e. embryo monkey-flying)

CHEIROPTERA.

BAT TRIBE.

Pteropus edulis, Geoffroy. *Flying Fox.*
လင်းဆွဲလျှင်းဝတ် *len-hswai, or len-wet.*
Macroglossus minimus, Grey. *Small fruit-eating Bat.*
Cynopterus marginatus,
Megaderma spasma, Geoff. *Leaf-nosed Bats.*
Rhinolophus affinis, Horsfield.
Hipposideros nobilis, "
" larvatus "
" murinus Elliot.
Nycticejus flaveolus, Blyth. *Ordinary Bats.*
" castaneous, Grey.
Scotophilus fuloidus, Blyth.
" coromandalianus, Cuvier.
Vespertilio adversus, Horsfield.
Myostis "

Since page 149 left the press, Mr. Blyth describing recent specimens from Shway-gyen writes:

"*Myotis*——? resembles *M. pipis trellus* in size and structure, but is of a dark fuscous hue, the fur slightly tipped with earthy brown on the upper parts, and much more largely tipped with paler almost whitish brown below; menbranes dusky."

Taphozous saccolaimus Temm.
" malanopogon, "
" longimanus, Hardw.
လင်းနို့ *len-no.*
Nycticejus luteus,
" Temminckii,

For the last two species, see Journal A. S. Bengal 1854, page 731.

INSECTIVORA.

INSECT-EATERS.

Tupaia javanica, *Javanese Tupaia.*
ဆွဲ *swai.*
Hyloays peguensis, Blyth. *Peguan hyloays.*

Sorox Parotettii,	Guerin.	*Musk shrew.*
" griffithii,	Horsfield.	"
" serpentarius,	Geoffrey.	"
" fuliginosus,	Blyth.	"
" nudipes,	"	"
" cœrulescens,	"	"
ကျွက်စုတ်။ *kywet-suk.*		
Talpa leucura,	Blyth.	*Mole.*

CARNIVORA.

CARNIVOROUS ANIMALS.

Ursus malayanus.		*Malay Bear.*
ဝက်ဝံ။ *wet-won.*		
Arctonyx collaris.		*Pig-Bear.*
ခွေးတဝက်၊ ဝက်တဝက်။ *khwae-tawet, wet-tawet.*		
Arctonyx taxoides.	Blyth.	*Aracan Pig-bear.*
Arctictis Binturong,	Fischer.	*Monkey-Tiger.*
မြောက်ကြား။ *myouk-kya.*		
Helictes Nipalensis,	Hodg.	*Weasel. (Aracon.)*
ကြောင်ပြန်။ *kyoung-pyan.*		
Lutra leptonyx,	Blyth.	*Otter.*
" Nair,	Fred. Cuv.	" *(Aracan.)*
ပျံ။ *phyan.*		
Canis familiaris.		*Domestic Dog.*
ခွေး။ *khwae.*		
Canis rutilis.		*Wild Dog.*
တောခွေး။ *tau khwae.*		
Tanis aureus		*Jackal.*
မြေခွေး။ *myae-khwae.*		
Viverra malaccensis,	Gmelin.	*Malacca Civet.*
ကြောင်ကတိုး။ *kyoung-ka-do.*		
Viverra Zibetha,	Linn.	*Zibeth Civet.*
ကြောင်မြင်း။ *kyoung myen.*		
Paguma trivirgata,	Gray.	*Three-Strip Paguma.*
ကြောင်နဂါး။ *kyoung-na-ga.*		
Paradoxurus Musanga,	Gray.	*Common Paradoxure.*
ကြောင်ဝံဗိုက်း *kyoung-won-baik.*		
Paradoxurus lencorhinus,	Blyth.	*White-Eared Paradoxure.*
ကြောင်နရွက်ဖြူ။ *kyoung-na-ywet-phu.*		
Paradoxurus nipalensis,	Hodgson.	*Nepal Paradoxure.*

Urva cancrivora,	Blyth.	*Tenass. Ichneumon.*
ဝှေပါ။ *mway-pa.*		
Tigris regalis,	Gray.	*Royal Tiger.*
ကျား။ *kya.*		
Felis leopardus,	Schreber.	*Leopard.*
ကျားသစ်။ *kya-theet.*		
Felis melas,	Gray.	*Black Leopard.*
Felis (?)		*Leopard-Cat.*
ချေသစ်။ *khyæ-theet.*		
Felis javanensis.	Desmar.	*Tiger.Cat.*
Felis macrocelis,		"
" minuta.	Temminck.	"
" bengalensis.		"
" nepalensis.		"
တောကြောင်။ *tau-kyoung.*		
Felis chaus.		*Chaus.*
ကြောင်စကိုခွန်။ *kyoung-set-khung.*		
Felis domestica.		*Domestic Cat.*
ကြောင်။ *kyoung.*		

RODENTIA.

GNAWING ANIMALS.

Sciurus bicolor,	Sparr.	*Two-colored Squirrel.*
ရှဉ်း *shen.*	(*generic name of squirrels.*)	
Sciurus chrysonotus,	Blyth.	*Golden Backed Squirrel.*
Sciurus atrodorsalis,	Blyth	*Black Backed Squirrel.*
Sciurus pygerythrus	"	*Rusty Squirrel.*
Sciurus Phayrei,	"	*Phayre's Squirrel.*
Sciurus Barbei,	"	*Barbe's Squirrel.*
Sciurus Berdmorei,	"	*Berdmore's Squirrel.*
Sciurus Kerandrenii,	Lesson.	*Red Squirrel.*
Sciurus hyperythrus,	Blyth.	*Red Bellied Squirrel.*
Sciurus lokriah,	"	*Yel. Bellied Squirrel.*
Hapalomys longicandatus		
Pteromys petaurista,		*large flying Squirrel.*
ရှဉ်းပျံ။ *shen-pyan.*		
Pteromys spadiceus.	Blyth.	*Small Flying Squirrel.*
Sciuropterus Phayrei.		*Phayre's Flying Squirrel*

Mr. Blyth has recently determined that *Sciuroptera saggitta* of page 162 is identical with the species above, "Phayre's Flying Squirrel".

Since page 163 was printed off, Mr. Blyth has described *eight* species of rats and mice from Major Berdmore's last collections at Shwaygyen,

Mus robustulus, Blyth, *Robust Rat*—"Tail not quite as long as head and body, which latter measure together about 6 inches. Colour much as in *M. decumanus*, but the feet conspicuously whitish."

" cinnamomeus, Blyth, *Cinnamon coloured Rat.* Like *M. flavescens*, but smaller with a proportionally longer tail and softer fur, of a fine cinamon colour, (nearly as in *M. oleraceus*) with inconspicuous black tips ; the under part white."

Mus flavescens, Gray *Yellowish Rat*—"A rat very like *M. flavescens*, but of a darker and much less rufescent hue above. The *M. Berdmorei*, should perhaps be referred to it."

" nitidulus, Blyth, *House mouse.*— " Tail equal to the head and body; colour nearly that of *M. decumanus*, with the under parts subdued white.

" ? "Very like young of *M. nemoralis.*"

" concolor. Blyth. "*A house mouse*, probably of an uniform greyish mouse colour."

" badius, Blyth. Like *M. oleraceus*, but the eye fully twice as large, and black whiskers; colour of the upper parts a more rufous chesnut, or cinnamon hue; of the lower parts white, almost pure.

Mus Peguensis, Blyth, *Field mouse.*

သျှယ်ကြွက်၊ *lay-kywet.*

"Tail longer than the head and body. Fur very full and dense, pale yellow and brown on the upper parts, slightly yellowish white below ; whiskers remarkably long.

All the species white on the under parts are called by the Burmese, "White bellied rats."

ကြွက်ဝမ်းဖြူ၊ *kywet-won-phyu.*

Mus bandicota, Bech. *Bandicot Rat.*

ဖြဲကြွက်၊ *myae-kywet.*

" arvicola?

ရေကြွက်၊ *yae-kywet.*

Mr. Cross, when on the Tenessarin a few months ago, wrote:

Rat Visitation.

"The people, in common with all who grow the hill paddy, over an extent of country more th an fifty miles square, are suffering a famine of rice. This is occasioned by swarms of rats, which devoured the paddy, or rather cut down the stalks, just as the ears began to fill. The rats twice visited some parts of this territory

during the season, so that scarcely a stalk of rice escaped them. I met with two of these animals, swimming the Tenasserim where it is more than a quarter of a mile wide, and succeeded in capturing one. The animal is about five inches from the nose to the end of the tail, of a slim and nimble appearance, the belly white, and the rest a mouse color. During the rains, when the river is much wider and more rapid, these rats crossed in columns, as the people say, so abundant that a boat, in passing through, caught bushels of them. They only make their appearance at long intervals, like the locusts of other places. It is said to be from twenty to thirty years since they visited the country before, to any great extent. The people think they have a warning of their approach by a heavy detonation, something like that of a cannon, but much heavier and louder. They remember that this was the case on their former visitation, and they say it was so now. Even some of the native preachers heard the sound, but did not like to think that it had anything to do with the rats. This detonation is occasioned by the breaking up of their fold, (so say the Burmese,) which is situated in the middle of the world."

Mr. Blyth found in Major Berdmore's collections specimens of a new genus of rats which he describes:

HAPALOMYS, nobis, *n. g.* A very distinct new genus of *Muridæ*, with long and delicately fine *pelage*, and exceedingly long tail, the terminal fourth of which is remarkably flattened and furnished with hair more developed than in perhaps any other truly *Murine* form. Limbs short, with the toes remarkably corrugated underneath, the balls of the unguinal phalanges greatly developed, protruding beyond the minute claws of the fore-feet, and equally with the more developed claws of the hind-feet. Head short; the ears small and inconspicuous. The skull approaches in form that of MUS INDICUS; but the rodential tusks are broader and flatter to the front; molars as in the *Muridæ* generally, but much worn in the specimen under examination; they are considerably less directed outward than usual, and the bony palate has therefore the appearance of being narrow; the super-orbital ridges project much outward, in form of a thin bony plate; and there is a considerable process at base of the zygoma anteriorly, and posterior to the ant-orbital foramen; zygomata broad and compressed about the middle.

H. LONGICAUDATUS, nobis, *n. s.* Length of male 5¾ in. to base of tail, of tail 7¼ in.; of female 5¼ in., with tail 7½ in.: sole 1⅛ in.: ears posteriorly ¼ in., rounded, and scantily fringed with fine long hairs. Fur long and soft, measuring about ⅜ in. on the upper-parts, slaty for the basal two-thirds, then glistening brown with black tips, and a few long hairs of very fine texture interspersed: lower-parts dull white. Whiskers black, long and fine; and there is a tuft of fine blackish hair anterior to the ears.

Rhizomys. sumatrensis, Gray. *Bamboo Rat.*
ငွေး *pwae.*
Rhizomys. *Small Bamboo Rat.*
Hystrix bengalensis, *Large Porcupine.*
ဖျု *phyu.*
Atherara sp. ? Blyth. *Small Porcupine.*
Lepus peguensis, *Pegu Hare.*
ယုန် *yung.*
Lepus cuniculus. *Rabit.*
ဖူးကောင်း *phu-goung.*

EDENTATA.

TOOTHLESS ANIMALS.

Manis javanica. Desmar *Pangolin.*
သင်းခွေချွတ် *then-khwæ-ghyat.*
Manis leucura. *Aracan Pangolin.*

PACHTDERMATA.

THICK-SKINNED ANIMALS.

Elephas indicus, *Elephant.*
ဆင် *hsen.*
Sus indicus, Schinz. *Wild hog.*
တောဝက် *tau-wet.*
Rhinoceros, unicornis, Linn. *Single-horned Rhinoceros.*
ကြဆင် *kyan-hsen.*
Rhinoceros sumatranus, *Double-horned Rhinoceros.*
ကြရှေ့ *kyan-shau.*
Rhinoceros Sondaicus, Cuvier. *Javanese Rhinoceros.*
Tapirus malayanus, *Malay Tapir.*
တရှု *ta-ra-shu.*

SOLIDUNGULA.

SOLID-HOOFED ANIMALS.

Equus caballas, *Horse.*
မြင်း *myen.*
Equus Asinus, *Ass.*
မြည် *myai.*

RUMINANTIA.

RUMINATING ANIMALS.

Tragulus Kanchil, Gray. *Chevrotain.*
ယုန်။ *yung.*
Styloceros Muntjak, H. Smith. *Barking Deer.*
ခွေး ဂျီး။ *ghee.*
Cervus porcinus, *Hog Deer.*
ဒရယ်။ *da-yay.*
Rusa hippelaphus, H. Smith. *Rusa Deer, or Sambur deer.*
ဆတ်။ *hsat.*
Panolia acuticornis, Gray. *Brown-antlered Rusa.*
သမင်။ *tha-men.*

On a recent specimen from Major Berdmore, Mr. Blyth writes: "Cervus (Panolia) ——? *C. frontalis* apud Cantor. The horns differ as usual from Manipur specimens by being shorter, especially the brow-antler, with greater tendency to subdivide at the crown."

Of two skins he says:

"They are of a pale chesnut-brown colour, paler on the sides, white below; spotless with a dark mesial list which in one of the two specimens is scarcely discernible: face and limbs more or less infuscated: the tail, if (as it appears) perfect, very short. Evidently in summer coat. Not unlike C. DUVAUCELLI in corresponding garb; but the latter is mostly more or less spotted or *mouchetted*, with especially a row of pale spots along each side of the dorsal list; and there is no infuscation of the face and limbs.

Næmorhedus sumatrensis, H. Smith. *Goat Antelope.*
တောဆိတ်။ *tau-hseik.*
Ovis aries, *Sheep.*
သိုး။ *tho.*
Capra Hircus, *Goat.*
ဆိတ်။ *hseik.*
Bos gaurus. H. Smith. *Gaur.*
ပြောင်။ *pyoung.*
Bos sondaicus, *Wild Ox.*
ဗိုင်။ *saing.*
Bos indicus, *Zebu Ox.*
နွားဒေး။ *nwa.*
Bos taurus, *English Ox*
Bubalus Arnee, H. Smith. *Buffalo.*
ကျွဲ။ *kywai.*

CETACEA.

WHALE TRIBE.

Delphinus plumbeus. Dussum. *Porpoise.*
လဘိုင်း *la-baing.*
Balænoptera, *Rorqual.*
ငါးဆင်း *gna-hsen.*
Balœna, *Whale.*
ငါးဝန်း *gna-won.*
Halicore Indicus, F. Cuvier. *Sea Cow, Dugon.*

In May 1859 Mr. Blyth writes: "Capt. Nesbit has presented us with some bones of a nearly half-grown Duyoung found in an Andamanese hut. This is the first instance we know of the Duyoung inhabiting the Bay of Bengal, though common in the Straits of Malacca and in the Gulf of Calpentyn in Ceylon, and also found off the Malabar coast where known to Europeans, as a Seal." Its existence in the Mergui Archipelago was brought to my notice by the late Rev. S. Benjamin in 1853.

BIRDS.

AVES, *Birds,*
Order I. SCANSORES, *Climbing Birds.*
Fam. PSITTACIDÆ, *Parrot Family.*

A generic term for birds of the parrot tribe, in Burmese, is ကျက်တူရေး ကျက်တူရွေး *kyet-tu ywæ*; another name to which the specific distinctions are usually affixed is ကြေး *kyæ.*

Palæornis Alexandrinus. *Alexandrine Parrakeet.*
ကျက်တော *kyet-dau.*
ကြေးဖျင်ခါး *kyae-phoung-kha.*
Palæornis torquatus, Blyth. *Rose-ringed. do.*
ကြေးကျုတ်း *kha-gyok.*
Palæornis cyanocephalus. Briss. *Bengalee Parrakeet.*
ကုလား *kula,* ကြေးကုလား
ကြေးတမာ *khae-tama.*
Palaeornis schisticeps, Hodgson. *Nepal Parrakeet.*
Palæornis nigrirostris, Hodgson. *Black-billed Parrakeet.*
ကုလား *kula.* ကြေးကုလား
Loriculus vernalis, *Red-Rumpt Lorikeet.*
ချွန်းထိုး *khywonhto.*
ကြေးသတာ *khae-thata,*

Order II. RAPTORES. RAPACIOUS BIRDS.

Tribe DIURNÆ. DIURNAL.

Fam. FALCONIDÆ. FALCON FAMILY.

Subfam. FALCONINÆ. TRUE FALCONS.

Falco peregrinator,	Sundevall,	*Red Indian Falcon.*
Hypotriorchis severus,	Boie.	*Spotted Falcon.*
Tinunculus alandarius,	Viellot.	*Kestrill.*

ဂျိုးသိန်း၊ *gyotheing.*

Hierax eutolmos,	Hodg.	*Bengal Falcon.*

ဒောင်ဦးနှောက်၊ *koung-oo-hnouk.*

Hierax fringillarius,		*Small Falcon.*

Subfam. PERNINÆ. CUCKOO-HAWKS.

Baza lophotes,	Temm.	*Indian Cuckoo-Hawk.*
Pernis brachypterus,	Blyth.	*Mergui Cuckoo-Hawk.*
Pernis cristata,	Cuvier.	*Red-necked Pern.*

Subfam. ELANINÆ. GLEDES, KITES.

Elamus melanopterus,	Lev.	*Kite.*

Subfam. CIRCÆTINÆ. SNAKE-EAGLES.

Haĕmatornis cheela,	Gould.	*Snake-eagle Kite.*

Subfam. CIRCINÆ. HARRIERS.

Circus aeruginosus,	Gould.	*Marsh Harrier.*
Circus Swainsonii,	A. Smith.	*Swainson's Harrier.*
Circus cinerascens,	Gould.	*Montagu's Harrier.*
Circus melanoleucos,		*Pied Harrier.*

သိန်းကြား၊ *thein-kya.*

Poliornis teesa,	Hardwick.	*Teesa Harrier.*

Subfam. ACCIPITRINÆ. HAWKS.

Accipiter virgatus,	Jerdon.	*Banded Hawk.*
Micronisus badius,	Gray.	*Calcutta Sparrow-Hawk.*

သိမ်ကြက်မ၊ *theing-kyetma.*

Astur trivirgatus,		*Goshawk.*

Subfam. THRASAETINÆ. EAGLE HAWKS.

Spizætus limnœtus.		*Banj Eagle.*
" alboniger,		*Black and white Eagle hawk.*

Subfam. AQUILINÆ. EAGLE.

The generic name for the eagle in Burmese is ဝံလို၊ *won-lo.*

Aquila imperialis		*Imperial Eagle.*
Aquila nævia,	Blyth,	*Spotted Eagle.*

Aquila hastata,	Blyth,	*One Colored Eagle.*
Ictinaetus malaiensis,	Blyth,	*Black Eagle.*

Subfam. BUTEONINÆ. BUZZARDS.

Buteo pygmæus,	Blyth,	*Little Buzzard.*

Subfam. HALIÆTINÆ. ERNES, OR FISHING EAGLES.

Ospreys, or Fishing Eagles, are in Burmese usually denominated ဝံလတ် *won-let.*

Pandion halliaetus,	Blyth.	*Bengal Osprey.*
Pontoaëtus icthyaëtus,	Blyth.	*Two-colored Erne.*
Blagruz leucogastur,	Blyth.	*Maritime Eagle.*
Haliaetus Macei,	Blyth.	*Bone-breaker.*
Haliastur indus,	Blyth.	*Brahminee Kite.*

ဓွန်ခေါင်ဖူး *swon-ghoung-phu.*

Milvus govinda,	Sykes.	*Bengal Kite.*

ဓွန်ပုတ် *swon-boke.*

Fam. VULTURIDÆ.

Subfam. VULTURINÆ.

The Pali name of the Vulture is ဇဋ္ဌ *gieza,* probably of common origin with the English word *gier.* The Burmese call all the Vultures လင်တာ *lenta.*

Otogyps calvus,	Blyth.	*Pondicherry Vulture.*
Gyps indicus,	Grey.	*Indian Vulture.*
Gyps bengalensis,	Hardwicke.	*Chinese.*

Tribe II.—NOCTURNÆ.

Fam. STRIGIDÆ.

Subfam. BUBONINAE.

Owls of the Bubo tribe are usually denominated in Burmese တီတုတ် *tee-dok,* in imitation of their midnight cries.

Bubo bengalnensis,	Gould.	*Bengal Bubo.*
Bubo umbretus,	Blyth.	*Coromandel Bubo.*
Asiobrachyotus,	Gould.	*Short-eared Owl.*
Scops bakkamoéna,	Blyth.	*Scops-eared Owl.*
Scops lempiji,	Blyth.	*Javanese Scops.*
Ketupa celonensis,	Blyth.	*Horned Owl.*
Ketupa javanensis,	Lesson,	*Javanese Ketupa.*

Subfam. ATHENINAE.

Syrnium seloputo,		*Nicobar Owl.*
Ninox scutulatus,	Blyth.	*Screech Owl.*

ခဲပုတ် *khen-bok.*

Athene cuculoides,	Gould.	*Small owl.*

ဇီးကွက် *zee-kwet.*

Subfam. SYRNIINAE.

Syrnium indrani,	Gray.	*Newar Syrnium.*
Syrnium sineuse,	Hardwicke.	*Oriental Syrnium.*

Subfam. STRIGINAE.

Phodilus badius,	Horsfield.	*Javanese phodilus*
Strix javanica,	Sykes,	*Barn owl.*

Order III. INSESSORES. Perching Birds.

Suborder. PICAE, L. (modified).

Tribe. SYNDACTYLI, Cuv. (modified).

Fam. BUCEROTIDAE. HORNBILLS.

The Burmese call the large crested Hornbills *young-yen*, from *young* the knot of hair worn by men. The smaller species are denominated *ouk-khyen*, perhaps from *ouk*, "to be dark, gruff in countenance."

Buceros cavatus,	Shaw.	*Concave Hornbill.*
ယောင်ယင်။	*young-yen.*	
Buceros albirostris,	Shaw.	*White-billed Hornbill.*
အောက်ချင်း။	*ouk-khyen.*	
Buceros gingalensis,	Shaw.	*Aracan Hornbill.*
Buceros pusarau,	Raffles.	*Black Hornbill.*
ယောင်ယင်နက်။	*young-yen-net.*	
Buceros plicatus,		*Plicated Hornbill.*
အောက်ချင်း။	*ouk-khyen.*	
Buceros Tickelli,	Blyth.	*Tickell's Hornbill.*

Fam. UPUPIDAE. HOOPOES.

Upupa epops.	Lin.	*Hoopoe.*
တောင်ဖျိုတိ။	*toungpee-sok.*	

Fam. HALCYONIDAE. KING FISHERS.

Dacelo pulchella,	Horsfield.	*Beautiful Little King-fisher.*
Halcyon amauropterus.		*Sunderbuns Kingfisher.*
ဆင်ဖျိုညင်း။	*hsen-peing-nyen.*	
Halcyon gurial,	Pearson.	*Jungle Kingfisher.*
ဖျိုညင်း။	*peing-nyen.*	
Halcyon smyrnencis,	blyth.	*Smyrna Kingfisher.*
Halcyon coramander,	Blyth.	*Coromandel Kingfisher.*
Halcyon atricapillus,	Blyth.	*Black-capped Kingfisher.*
Todirhamphus collaris,	Blyth.	*Sacred Kingfisher.*
Ceryle rudis,	Edwards.	*Wild Kingfisher.*
Alcedo bengalensis,	Edwards.	*Bengal Kingfisher.*
Alcedo meniugting,	Horsfield.	*Asiatic Kingfisher.*
Ceyx erythaca,	Jerdon.	*Three-toed Kingfisher.*
ဖျိုညင်း။	*deing-nyeen.*	

Fam. CORACIDAE. ROLLERS.

Coracias affinis, *Rollers.*

ငှက်ခါး *hgnet-kha.*

Eurystomus orientalis, *Broad billed Roller.*

မိုးကောင်ငှက် *mo-koung-hgnet.*

Fam. MEROPIDAE. BEE-EATERS.

Alcemerops Athertoni, *Wasp eater.*

ပျားတူးငှက် *pyatu-hgnet.*

Alcemerops amicta, Swainson. "

Merops phillippinus, Linn, *Javanese bee eater.*

Merops erythrocephalus, Latham, *Red headed bee eater.*

Merops viridis, *Green bee eater.*

ငှက်ပစ်ထိုး *hgnet-pazen-hto.*

Tribe ZYGODACTYLI.

Division I. (Devoid of cæca.) Subdivision 1. (Climbers.)

Fam. PICIDAE. WOODPECKERS.

The Burmese name for Woodpecker, *theet-touk*, corresponds very nearly to the English, being formed from *theet* tree or wood, and *touk* to tap or rap.

Subfam. CAMPEPHILENAE.

Hemicircus canente, Lesson, *Sagacious Woodpecker.*

Hemilophus pulverulentus. Blyth, *Javanese Woodpecker.*

Hemilophus Crawfurdii, Gray, *Crawfurd's Woodpecker.*

Chrysocolaptes sultaneus, Blyth, *Royal Woodpecker.*

Tiga intermedia, Blyth, *Three toed Woodpecker.*

Subfam. GECININAE.

Gecinus dimidiatus, Blyth, *Green Woodpecker.*

Gecinus occipitalis, Gould, *Black crowned green do.*

Division III (With crested nape.)

Gecinus flavinucha, Blyth, *Aracan green Woodpecker.*

Gecinus chloropus, Hardw. *Himalayan green do.*

Gecinus mentalis, Blyth, *Tenasserim green do.*

Gecinus puniceus, Blyth, *Golden backed do.*

Meiglyptes jugularis, Blyth, *Black Woodpeckers.*

Micropternus phaioceps, Blyth, *Rufous Indian Woodpecker*

Subfam. PICINAE.

Picus canicapillus, *Red-plumed Woodpecker.*

Subdivision II. (Perchers.) Fam. MEGALAIMIDAE. BARBETS.

Megalaima virens, Gould, *Green Barbet.*

Megalaima lineata, Temm. *Lined Barbet.*

မိုးကောင် *pkogoung.*

Megalaima asiatica, Viellot, *Asiatic Barbet.*

ကုလားသောင် *kok-kha-loung.*

Megalaima Franklinii, *Franklin's Barbet.*
Megalaima phillippensis, Temm. *Indian Barbet.*
ငှက်ပန်းတိန်။ *hgnet-pa-deing.*
Megalaima trimaculata, Temm. *Red cheeked Barbet.*
ငှက်ပတိန်။ *hgnet-pa deing.*

Of the Barbets we have some valuable observations from Major Tickell: "The Barbet I have hot at Darjiling, where it is not common.* But in the Tenasserim mountains it swarms from 3000 to 5000 ft. elevation, not higher, nor lower.—and from the first level it suddenly and entirely supplants M. LINEATA, the *Pokoung* of the Burmese. As long as day lasts, the woods amongst the Dauna hills resound with its cry—*piow, piow, piow*, &c. &c.—There is another Barbet, smaller and resembling apparently the M. INDICA, which is also pretty common, from 1000 to 3500 ft.; but it settles *solely* on the summits of the hugest trees, calling out *tapral, tapral, tapral*, by the hour together; and I have found it impossible to procure with the gun: so small an object at such a vast height cannot be hit.† Mr Parish, our chaplain, was with me on one of my excursions, and measured the trunk of one of these giants of the forest which had fallen across a little brook. The smooth bole, before a single limb branched out, was 130 feet long."

Fam. CUCULIDAE. COCKOO FAMILY.

Subfam. CUCULINAE. CUCKOOS.

Cuculus sparveroides, Vigors. *Feruginous necked Cuckoo.*
Cuculus varius, Vahl. *Slender billed Cuckoo.*
Cuculus Himalayanus, Drapiez *Himalayan Cuckoo.*
Cuculus striatus, Vigors, *Striated Cuckoo.*
Cuculus tenuirostris, Grey, *Golden Cuckoo.*
Cuculus Sonnaratii, Latham, *Sonnerat's Cuckoo.*
Surniculus dicruroides. Blyth, *King-crow Cuckoo.*
Chrysococyx zanthorhynchos, Hors, *Amethystine-purple Cuckoo.*
Chrysococyx chalcites, ? Temm. *Malayan Cuckoo.*
Cuculus orientalis, *Oriental Cuckoo.*
ဦးသြဲ။ *oo-au.*
Orylophus melanoleucus, Blyth, *Milkman Cuckoo.*
Oxylophus coromandus, Blyth. *Coromandel Cuckoo.*
Phœnicophaus curvirostris, Vail. *Hook-billed Cuckoo.*

Mr. Blyth remarks: "The PHŒNICOPHAUS CURVIROSTRIS and PHYLLORNIS SONNERATII have heretofore been only known as Malasian species. The former was observed by Maj. Tickell 'on low jungly hills,—very like PH. TRISTIS in habits: scarce: a pair shot were both precisely similar, except in color of iris; the male

* Mr. Hodgson procured it in Nepal; and we have received it from the Khasya hills, and from those of Aracan.—*Cur. As. Soc.*

† Probably M. TRIMACULATA (var. *cyanotis*). *Cur. As. Soc.*

having that cobalt blue, and the female orange. Food *Coleoptera, Hemiptera*, and very large caterpillars."

Zanclostomus tristis,	Belanger,	*Bottle green Cuckoo.*

ဝါဖလေး။ *wa-phalæ.*

Zanclostomus javanicus,	Blyth,	*Chalybeate Cuckoo.*
Centropus Phillipensis,		*Crow Pheasant.*

ဗုတ်။ *bok.*

Centropus viridis,	Brown,	*Bengal Crow Pheasant.*

Fam. TROGONIDAE.

Harpactes Hodgsonii,	Gould.	*Red-headed Trogon.*
Harpactes oreskios,	Gould.	*Green-headed Trogon.*

ထတ္တရူ။ *htok-taru.*

Major Tickell writes:

"HARPACTES ERYTHROCEPHALUS was common in the hills from 3,000 ft. upwards. Below that it is replaced by H. ORESKIOS. It flies in small troops, and is active and vociferous in the morning, solitary and quiet during the heat of the day, sitting in the shade. It appears larger and brighter than in Nepal and Sikim."

Fam. CAPRIMULGIDAE. NIGHTJARS.

The Burmese call nightjars goatsuckers, မြေဝဝီ။ *myæ-wot*· "Earth-crouchers," from their habit of crouching on the ground. The Aracanese name is ဌက်ပြင်း *hgnet-byen*, "Outside bird."

Subfam. PODARGINAE.

Podargus affinis,	Blyth,	*Strong Billed Nightjar.*

Subfam. CAPRIMULGINÆ.

Eurostopodus cerviniceps,	Gould.	*Lyncornis Nightjar.*
Caprimulgus indicus,	Latham.	*Indian Nightjar.*
Caprimulgus macrourus.	Horsf.	*Australian Nightjar.*
Caprimulgus asiaticus,	Latham.	*Asiatic Nightjar.*
Caprimulgus monticolus,	Franklin.	*Great Bombay Goatsucker.*

Fam. CYPSELIDÆ. SWALLOWS.

Subfam. CYPSELINÆ.

Acanthylis caudacuta,	Blyth,	*Spiny-tailed Swift.*
Cypselus affinis,	Gray,	*Nepal Swallow.*
Cypselus balasiensis,	Gray.	

ပြန်လွှား။ *pyan-hlwa.*

Collocalia nidifica,	Blyth,	*One coloured Swift.*
Collocalia fuciphaga,		*Edible-nest Swallow.*

Subfam. MACROPTERIGINÆ.

Macropteryx coronatus,	Blyth,	*Short-footed Swallow.*

A fine specimen of our Indian MACROPTERYX CORONATUS, (Tickell), is the first example of this species which we have seen from the eastern side of the Bay of Bengal.

Suborder PASSERES, L. (modified.)

Fam. CORVIDÆ.

Subfam. CORVINÆ.

Corvus culminatus,	Sykes.	*Indian black Crow.*
Corvus splendens,	Vieillot,	*Common Indian Crow.*

ကြီးကန်း *kyie-gan.*

Subfam. GARRULINÆ.

(A. MAGPIES.)

Dendrocitta rufa,	Vail.	*Wandering pie.*
Crypsirina varians,	Vieillot,	*The satin Crow, or Benteet.*

(B. JAY-MAGPIES.)

Cissa venatoria,	Hardwicke,	*Jay Magpie.*
Psilorhinus magnirostris,	Blyth,	*Blue Magpie.*
Psilorhinus occipitalis,	Blyth,	*Chinese Jay Magpie.*

Subfam. GARRULACINÆ, BABLERS.

GARRULAX BELANGERI,	Lesson.
G. STREPITANS,	Tickell.
G. LEUCOLOPHOS,	Blyth.
G. CHINENSIS,	Tickell.
G. PECTORALIS,	Blyth.
G. MONILIGER.	Blyth.
G. MELANOSTIGMA,	Blyth.

ဝဆောင်းငှက် *wa-young-hgnet.*

SIBIA,	(Two new species.)	
Preruthius,		Swainson.
" ærulatus,		Tickell.

This is a bird nearly related to the Bablers discovered by Major Tickell. Mr. Blyth's description is here added. " PTERUTHIUS ÆRALATUS, Tickell, *n. s.* Quite similar to PT. ERYTHROPTERUS of the Himalaya, excepting that the latter has constantly the tertiaries wholly ferruginous in both sexes. In the Tenasserim bird, the female has the tertiaries greenish golden-yellow, like the secondaries, with merely a tinge of ferruginous upon the shaft and on the inner web only of each; and the male differs from that of the Himalayan bird by having nearly the whole outer webs of the tertiaries bright golden-yellow, the smallest having also a black tip and inner edge, the next a black tip to the outer web only, the third and longest an oblique and elongated black tip to the outer web only, and the feather succeeding this (or last of the secondaries) has also a mark $\frac{7}{8}$ in. long on its outer web of mingled ferruginous and golden-yellow. We also cannot perceive, in the male sent by Capt. Tickell, any trace of the carneous tinge, seen particularly on the flanks posteriorly of PT. ERYTHROPTERUS; and the female has the under-parts, with the exception of the white throat only, much more fulvescent than the under-parts of the female PT. ERYTHROPTERUS. The two

species or races indeed manifest much the same relationship to each other, as do SER LOPHUS LUNATUS Gould), of Burmah, and and S. RUBROPYGIUS, (Hodgson), of the S. E. Himalaya. The Tenasserim PTERUTHIUS was "found at an elevation of 3,500 to 4,500 ft."

Sibia, Hodgson.
"Two new species."

Subfam. LEIOTHRICANÆ SILKY CHATTERERS

Eopornis xantholeuca,	Hodgson.	*Silky Chatterer.*
Leiothrix argentauris,	Swain.	
,, Strigula,	Delerrest.	
SYN. Siva ,,	Hodgson.	

Mr. Blyth writes:

The ALCIPPE NIPALENSIS (v. *Siva nipalensis*, Hodgson,) was "common, but local, in hilly jungles up to 4,000 ft." "I found," adds Capt. Tickell, "LEIOTHRIX ARGENTAURIS and SIVA STRIGULA, about the sides of Mooléit. STACHYRIS NIGRICEPS, in hilly forests, 3000 ft."

Subfam. PARINÆ. TITMICE.

Heteromorpha Ruficeps,	Hodgson.
Parus Flavocristatus,	Lafresnaye.
Parus Subviridis,	Tickell.

စာ sa.

Major Tickell remarks, that he shot the last species "at an elevation of 3,500 feet. The *Pari* are very uncommon in the Tenasserim forests. In fact this is the only one I have seen."

Subfam. GRACULINÆ. MYNAHS.

Gracula intermedia,	A. Hay.	*Intermediate Mynah.*
Gracula religiosa,	Latham.	*Talking Mynah.*
သာလိကာ *tha-lei-ka.*		
Ampelliceps coronatus,	Blyth.	*Yellow-barred Mynah.*
Acridotheres tristis,	Blyth.	*Black Mynah.*
Acridotheres ginginianus,	Vail.	*Ganges Mynah.*
ဇရက် *zayet.*		
Acridotheres griseus,	Blyth.	*Crested Mynah.*
ဇရက်မောက်တင် *zayet-mouk-ten.*		
Sturnus contra,	Linn.	*Pied Starling.*
ဇရက်ချေးစား။ကျွဲဇရက် *zayet-khyā-sa; kywai-zayet.*		
Sturnia malabarica,	Blyth,	*White-Headed Mynah.*
Sturnia pagodarum,	Blyth.	*Black-Headed Mynah.*
ဇရက် *zayet.*		
Calornis affinis,	A. Hay.	*Callornis Mynah.*
Calornis cantor,	Blyth.	*Cantor Mynah.*

Fam. FRINGILLIEDÆ. SPARROW AND FINCH TRIBE.

Subfam. PLOCEINÆ.

Ploceus philippinus.	Blyth.	*Yellow Capped Weaver Bird.*

စာခေါင်ကွက်၊ *sa-ghaung-kwet.*

Subfam. ESTRELDINÆ.

Munia rubronigra,	Hodgson.	*Black-Headed Finch.*
Munia undulata	Edwards.	*Two-Coloured Finch.*
Munia Molucca?	Blyth.	*Acute-Tailed Finch.*
Munia striata,	Blyth.	*Field Sparrow.*
Estrelda amandava,	Blyth.	*Senegal Finch.*
Passer indicus,	Jardin and Selby.	*Indian Sparrow.*
Passer flaveolus,	Blyth.	*Yellow Sparrow.*
Passer montanus,		*Mountain Sparrow.*
Euspiza aureola,	Blyth.	*Bunting.*

စာ၊ *sa.* The Burmese name of all the preceding species, and of many other similar looking small birds.

Subfam. ALAUDINÆ. SKY LARKS.

Alauda gulgula.	Franklin.	*Sky Lark.*

Fam. MOTACILLIDÆ. WAGTAIL TRIBE.

Dendronanthus maculatus,	Blyth.	*Tree Pipit.*
Anthus Richardi,	Vieillot.	*Richard's Pipit.*
Anthus rufulus,	Vieillot.	*Slender Lark.*
Anthus pratensis,	Blyth.	*British Meadow Pipit.*
Nemoricla indica,	Blyth.	*Wood Pipit.*

ငှက်ရုတ်တတ်၊ *hgnet-ya-hat.*

Motacilla luzoniensis,	Scopoli.	*Water Wagtail.*
Motacilla boarula,	Linn.	*Sulphur Wagtail.*
Budytes viridis,	Brown.	*Wagtail lark.*

မြီးငေါက်၊ မြီးညောင်း၊ *myie-gnouk. myie-nyoung.*

Fam. SPHENURIDÆ. WARBLERS.

Megalurus palustris,	Horsfield.	*Soft-Tailed Warbler.*
Chatarrhæa,	Blyth.	*Adivision of Malacocercus, Swainson.*
" gularis,	Blyth.	

This species was recently discoverd in Pegu by Col. Phayre. Mr. Blyth's description is here appended.

"CHATARRHÆA GULARIS, nobis, *n. s.* A handsome species of this group. and the first which we have seen from the eastern side of the Bay of Bengal: though CH. EARLEI, nobis, extends into Tippera. It is affined to CH. EARLEI, but with a still longer tail, which is more distinctly rayed across. C olour ruddy-brown, passing to olivaceous on the hind-part of the back, each feather having a narrow black mesial streak; frontal feathers narrow,

stiffish, pointed, and white with black me ial line ; these peculiar feathers continued over but not beyond the eye : lores blackish : chin and throat pure white, extending down the front of the neck ; ear-coverts and sides of neck unstreaked ruddy : breast and flanks ruddy-brown, paler on belly, and the lower tail-coverts duller brown : tail dull olive-brown, and conspicuously rayed across. Bill dull plumbeous. yellowish towards gape ; and legs pale brown, darker on joints. Length about 11 in. ; of tail 6 in : closed wing $3\frac{3}{8}$ in. ; bill to gape 1 in. ; and tarse $1\frac{1}{8}$ in.

Prinia rufescens,	Blyth.	*Wren-like Warbler.*
Prinia flaviventris,	Blyth.	*Yellow-Bellied Warbler.*
Orthotomus longicaudata,	Blyth.	*Tailor Bird.*
နှင်းညိုစုတ်၊ *nan-pyee-soke.*		
Cisticola cursitans,	Jerdon.	*Grass Warbler.*
Pellornium ruficeps,	Swainson.	*Olive Pellorneum.*
Pomatorhinus hypoleucos,	Blyth.	
" schisticeps,	Hodgson.	
Pomatorhinus olivaceous,	Blyth.	*Fan-Tailed Babbler.*
သွေးရှည်၊ *thwāe-shee.*		
Pomatorhinus Phayrei,		*Phayre's Pomatorhinus.*
Pomatorhinus albogularis,	Blyth.	*White-Throated Pomatorhinus.*
Pomatorhinus hypoleucos,	Blyth.	*White-bellied Pomatorhinus.*
Turdinus,	Blyth.	
" crispifrons,	"	

"Very like T. MACRODACTYLUS (*Malacopteron macrodactylum*, Strickland, v. *Brachypteryx albogularis*."

Turdinus brevicaudatus, Blyth.

Thse last two species are among the recent discoveries of Major Tickell. Mr. Blyth remarks :

" These birds belong to a group which is pre-eminently difficult of classification, *viz.* the great TIMALIA series, which attains its maximum of development in the Malayan peninsula. As a genus or sub-genus, it is barely separable from TRICHASTOMA, nobis, and this again from MALACOPTERON, ALCIPPE, nobis (exemplified by BRACHYPTERYX SEPIARIA, Horsfield, and numerous other species affined to it.) TURDINUS is distinguished by its robust form and especially by its peculiarly mottled plumage, the feathers being mostly pale-shafted and black-edged. It is not distantly affined to PELLORNIUM. "

Trichastoma abbotti,	Blyth.	*Abbott's Trichastoma.*
Trichastoma crispifrons,	Blyth.	
" brevicaudatus,	"	
Alcippie Phayrei,	Blyth.	*Phayre's Alcippe.*
Alcippe nipalensis,	Blyth.	*Nipalese Alcippe.*
Mixornis gularis,	Horsfield.	

Mixornis chloris,	Hodgson.	
Timalia Pileata,	Horsfield.	
Chrysomma sinense,	Jardin.	
Stachyris nigriceps,	Hodgson.	
" chrysaea,	"	
" nigrifrons,	Blyth.	

Fam. LANIADÆ. SHRIKES.

Gampsorhynchus rufulus,	Blyth.	*Rufous Gampsorhynchus.*
Lanius nigriceps,	Blyth.	*Black-Headed Shrike.*
Lanius tephronotus,	Blyth.	*Grey Backed Shrike.*
Lanius superciliosus,	Linn.	*Red-Headed Shrike.*
Lanius hypoleucos,	Blyth.	*White-Bellied Shrike.*
Lanius tigrinus,	Drapiez.	*Tiger Shrike.*
Tephrodornis pelvica,	Blyth.	*Drongo Shrike*
Tephrodornis pondiceriana,	Hordeo.	*Pondicherry Shrike.*
Tephrodornis grisola,	Blyth.	
Hemipus obscurrus,	Horsfield.	
Hemipus picata,	Blyth.	

Fam. BRACHAYURIDÆ. ANT THRUSHES.

Pitta nipalensis,	Blyth.	*Nipalese Ant-thrush.*
Pitta cyanoptera,	Temminck.	*Blue Ant-thrush.*
Pitta cyanea,	Blyth.	

မြေခွန်။ မြေငှက်။ *myăe-khung, myăe-gnung.*

Enicurus maculatus,	Vigors.	
Enicurus schistaceus,	Hodgson.	
" immaculatus,	"	

Fam. MERULIDAE. THRUSH TRIBE.

Subfam. MERULINAE. TRUE THRUSHES.

Myiophonus Temminckii,	Vigors.	*Temminck's thrush.*
Zoothera marginate.	Blyth	*Zoothera thrush.*
Turdus rufulus,	Drapiez.	*Unassuming thrush.*

မြေလူးငှက်။ *myăe-lu-hgnet.*

Geocichla citrina,	Lath.	*Olive thrush.*

Subfam. SAXICOLINAE STONECHATS.

Kittacincla macrourus,	Vaillant.	*Stonechat.*
Copsychus saularis,	Edwards.	*Dial.*

သဒိတ်လွယ်။ *tha-beik-lway.*

Notodela diana,	Lesson.	
Pratincola caprata,	Blyth.	*Two Coloured Stonechat.*

လယ်ခြံငှး *lay-khya.*

Erythrosterna leucura,	Blyth.	*White-tailed Red-breast.*
Anthipes moniliger,	Blyth.	
Muscicapula melanoleuca,	Blyth.	*Maculated Flycatcher.*
Cyornis rubeculoides,	Gould.	*Etherial Warbler.*
Hemicheldon latirostris,	Blyth.	*Wide-billed Flycatcher.*

Fam. TYRANNIDAE. TYRANTS.

Arundinax olivaceous, Blyth.
Acrocephalus brunnescens, Blyth.
Acrocephalus dumetorum, Blyth.
Abrornis schisticeps. Hodgson.
Phylloscopus viridipennis, Blyth.
" viridanus, "
" brunneus, "
" fuscatus, "

Fam. CERTHIADAE. CREEPERS.

Subfam. SITTINAE.

Dendrophila frontalis, Swainson. *Nuthatch.*

Fam. GRAUCALIDAE. CATERPILLAR CATCHERS.

Graucalus macei, Lesson. *Nepal caterpillar-catcher.*
Campephaga fimbriata, Strickland. *Blue-grey thrush.*
Campephaga melanoptera, *Black-winged caterpillar catcher.*

Fam.———? PRINCE BIRDS.

Pericrocotus roseus, Blyth. *Rosy-red Bird.*
Pericrocotus speciosus, Gould. *Prince Bird.*
ငှက်မင်းသား *hgnet-men-tha*, the male.
ငှက်မင်းသမီး *hgnet-men-thamie*, the female.
Pericrocotus peregrinus, Gould. *Malabar pericrocotus.*

Fam. PIPRIDAE. MANAKINS.

Subfam. EURYLAIMINAE. BROAD-BILLS.

Corydon sumatrensis, Blyth.
Eurylaimus javanicus, Horsfield.
Eurylaimus ochromalus, Raffles.
Cymbirhynchus nasutus. Blyth.
Cymbirhynchus affinis, Blyth.
Psarisomus dalhousiæ, Gould.
Serilophus lunatus, Blyth.
Serilophus rubropygia, Blyth.

Subfam. PIPRINAE.

Calyptomena viridis, Raffles.

Major Tickell remarks on the Manakins: "CORYDON SUMATRANUS is a singular and rare bird. Of its habits little or nothing is known. I can only say that it is crepuscular (very likely diurnal as well,) and so stupid and tame as to allow itself to be pelted without moving. EURYLAIMUS JAVANICUS is not common: at least it is not often seen; being very quiet and secluded, though excessively tame, and not crepuscular like CORYDON. SERILOPHUS LUNATUS. These birds are much freer flyers than EURYLAIMUS. I found them once, in a flock, hurrying about

like Titmice, but very high up. CALYPTOMENA VIRIDIS. These birds resort to dense thickets when alarmed, but will sally out to feed on fruit (wild figs, &c.) and they mingle with Barbets and other birds in so doing. The note is low and sweet—a mellow whistle. Like the EURYLAIMI, they are tame and stupid.

Fam. HIRUNDINIDAE. SWALLOWS.

Hirundo rustica,	Linn.	*European Swallow.*

မိုဃ်းခွေငှက်။ *mo-swăe-hgnet.*

Hirundo urbica,	Linn.	*Martin.*

ပြန်လွှား။ *pyan-hlwa.*

Hirundo sinensis,	Hardwicke.	*Short tailed Swallow.*

Fam. ARTAMIDAE.

Artamus fuscus.	Vieillot.	*Brown coloured Swallow.*

Fam. DICURIDAE. DRONGO SHRIKES.

Chibia aĕnea,	Vail.	*Flat billed chibia.*
Bhringa vernifer,	Blyth.	*Rangoon edolius.*
Edolius paradiseus,	Cuv.	*Paradise edolius.*
Dicrurus macrocercus,	Vieillot.	*King crow.*

ငှက်တော်။ *hgnet dau.* This name is often applied to all birds of the tribe.

ကျွဲမြီးဆွဲ။ *kway myie-shwai.*

Dicrurus longicaudatus,	Hay.	*Long-tailed King crow.*
Dicrurus idtermedius,	Blyth.	*Intermediate King crow.*
Dicrurus cinerareus,	Blyth.	*Ashy King crow.*

Fam. TCHITREADAE. FLY-CATCHERS.

Tchitreadæ affinis,	Hay.	*Paradise fly-catcher.*
Myiagra cærulea,	Vail.	*Azure headed fly-catcher.*
Cryptolopha cineceocapilla,	Swainson.	*Ashy-headed fly-catcher.*
Leucocerca fuscoventris,	Franklin.	*Broad tailed flycatcher.*

Fam. PYCNONOTIDAE. BULBOULS.

Hypsipetes psavoides,	Vigors.	*"Jungle goat."*
" concolor,	Blyth.	
" M'clellandii,	Horsfield.	
" Tieckelli,	Blyth.	
Iole virescens,	Blyth.	
Hemixos flavala,	Hodgson.	
Criniger flaveolus,		*Yellow-bellied. bulboul.*
Criniger ochrocephalus,	Gmelin.	*Ochre headed bulboul.*
Pycnonotus jocosus,	Linn.	*Pink-eared bulboul.*

ပုတ်။ *poke.* The generic name for the tribe.

ပုတ်ဖင်နီ။ (Aracan) *poke phen-nie.*

Pycnonotus haemorrhous,	*Amherst bulboul.*
Pycnonotus atricapillus?	*Black-eard bulboul.*

Pycnonotus Finlaysoni. *Yellow and green bulboul.*

ပုဇွဝါ။ *poke-wa.*

Pycnonotus flavescens. *Yellow bulboul.*

ပုဇွဝါ။ *poke-wa.*

Pycnonotus nigropileus, Blyth. *Brown-breasted bulboul.*

Pycnonotus melanocephalus, *Black-crested bulboul.*

ပုဇွဝါမောက်တင်။ *poke-wa mouk-ten.*

Brachypodius melanocephalus, Gmelin, *Black-headed bulboul.*

Subfam. PHYLLORNINAE. GREEN BULBOULS.

Phyllornis hardwickii, Delessert.

ပိုင်းတန်သယ်။ *paing tan-thay.*

Phyllornis aurifrons, Jardine.

ငှက်စိမ်း။ *hgnet seing.*

Phyllornis cochinchinensis, Strickland.

ငှက်စိမ်း။ *hgnet seing.*

Phyllornis Sonneratii, Jardine and Selby.

Iora innotata, Blyth.

" typhia, Edwards.

Irena puella, Horsfield.

ငှက်ပျာန်စိမ်း။ *hgnet-pya-seik.*

Fam. MELIPHAGIDAE. HONEY-EATERS.

Subfam. ORIOLINAE. ORIOLES.

Oriolus traillii, Gould. *Traill's oriole.*

Oriolus melanocephalus, Linn. *Mango bird.*

Oriolus indicus, Jerdon. *Indian oriole.*

ငှက်ဝါ။ *hgnet-wa.* " Yellow bird, " a name applied to all the species of the genus.

Subfam. MELIPHAGINAE. HONEY-EATERS.

Zosterops palpebrosus, *White-eyed warbler.*

Fam. NECTARINIIDAE. HONEY-SUCKERS.

The honey-suckers, or sun birds, are all denominated in Burmese ပန်းပွင့်စုတ်။ *pan-bwen-sok*, "Suckers, or kissers, of flower blossoms ; or ပန်းရည်စုတ်။ " Suckers of the nectar of flowers; " identical in signification with the systematic name *Nectarinia.*

Arachnothera magna, Blyth. *Honey-sucker.*

Arachnothera affinis, Blyth. *Long-billed honey-sucker.*

Nectarinia goalpariensis, Royle. *Goalpara Sun-bird.*

Nectarinia gouldæ, Gould.

Nectarinia afra, Blyth.

Nectarinia asiatica, Blyth.

Nectarinia malaccensis, Swainson.

Nectarinia flammaxillaris,	Blyth.	*Olive-green sun bird.*
Nectarinia hasseltii,	Temminck.	
Diceum cruentatum,	Edwards.	*Red backed sun bird.*
Diceum trigonostigma,	Sonnerat.	
Diceum chrysorrhœum,	Temm.	
Diceum minimum.	Blyth.	

Order IV. GEMITORES.

Fam. COLUMBIDAE.

Subfam. TRERONINAE. GREEN PIGEONS.

The Burmese call all the green pigeons ဂူ။ *Gnu.*

Treron aromatica,	Blyth.	*Curve-billed green pigeon.*
Treron viridifrons,		*Yellowish headed green* "
Treron phœnicoptera,	Gould.	*Hardwicke's green pigeon.*
Treron bicincta,	Vieillot.	*Yellow-breasted green* "
Treron malabarica,	Jerdon.	*Malabar green pigeon.*

The fruit pigeons are denominated by the Burmese ပြိုမတိ။ ဘုဇ္ဇတိ။ *Bung-ma-die.*

Carpophaga sylvatica,	Blyth.
Carpophaga insignis,	Blyth.
Carpophaga bicolor,	Sonn.

Subfam. COLUMBINAE.

The Burmese name of the ordinay pigeons is ခို။ *kho.*

Alsocomus puniceus,	Tickell.	*Pompadour wood-pigeon.*
Columba livia,	Brisson.	*India rock-pigeon.*

" What is called by English Sportsmen in India " Rock Pigeon" is no Pigeon at all, but a game bird approaching to a Grouse.—*Phayre.*

Macropygia amboinensis,	Blyth.	*Amboyna pigeon.*

The generic name for the doves, of which the turtle dove is the type, is ဖြို။ ဂျို။ *gyo* ; or ဥဖြို။ *oo-gyo.*

Turtur risorius,		*Temm.*
Turtur humilis,		*Ring dove.*
ဖြိုးလင်းပြား *gyo-len-bya.*		
Turtur suratensis,		*Turtle dove.*
ဖြိုးလယ်ပြောက်။ *gyo-lay-pyouk.*		
Turtur orientalis,	Blyth.	*Fox-coloured turtle dove.*
ဖြိုးပိန်တူမ။ *gyo-peing-tu-ma.*		
Chalcophaps indicus,	Edwards.	*Ground pigeon.*
ဖြိုးညို။ ဂျိုးညို။ *gyo-nyo.*		

Subfam. GOURINAE.

Calænas nicobarica,	Blyth.	*Nicobar pigeon.*
ခါ။ *kha.*		

Order RASORES.

Fam. PHASIANIDAE.

Subfam. PAVONINAE. PEACOCKS.

Pavo muticus, Vieillott. *Green neck peacock.*

ဥဒေါင်း *oo-doung.*

Meleagris gallopavo, *Turkey.*

ကြက်ဆင် *kyet-hsen.*

Subfam. POLYPLECTRONINÆ. PEACOCK PHEASANTS.

Polyplectron chinquis, Temm.

SMALL DOUBLE-SPURRED PEACOCK PHEASANT.

This species is minutely spotted with pale spots on a dark ground.

မင်းဒေါင်း *men doung.* ဒေါင်းကုလား *doung-ku-la.*

Polyplectron bicalcaratum, Hardw.

This species has dark spots on a pale ground.

Argus giganteus, Temm. *The Argus pheasant, or Malay peacock.*

Subfam. PHASIANINAE.

Gallus ferrugineus, *Jungle Fowl.*

ကြက် *kyet.* တောကြက် *taw-kyet.*

Euplocomus vieillotti, Blyth. *Great fire backed pheasant.*
Syn. ignitus, " *or macartneyi cock.*
Euplocomus lineatus, Belanger. *Burmese pheasant.*

Some varieties, Mr. Blyth says, are scarcely distinguishable from the "Purple pheasant of Europeans, (E. Horsfieldi) except by the characteristic whitish interior webs of medial rectrices."

ရစ် *yeet.*

Subfam. PERDICINÆ.

The generic name for Partridges and Quails in Burmese is

ခါ *kha.*

Numida melagris, Linn. *Guinea fowl.*
Francolinus phayrei, Blyth. *Phayre's francolin.*

This is a large bird with rufouse shoulders, and the body elegantly spotted.

Arboricola rufogularis, Blyth. *Ruddy-necked wood partridge.*
Arboricola atrogularis, Blyth. *Black-necked wood partridge.*
Arboricola brunneopectus,
" intermedia.

Mr. Blyth in describing these species, has some valuable remarks on the other species found in the country, and they are here transcribed. A. RUFOGULARIS, nobis, common in Sikim, and which Capt. Tickell has now sent from the Tenasserim moun-

tains; and A. ATROGULARIS, nobis, which is common in the mountains of Assam, Sylhet, if not also those of Aracan. We have since seen many dozens of living examples of the last from Sylhet, and remarked that there is no apparent sexual diversity, and but slight individual variation; and this we now suspect to be also the case with the second species, the supposed females referred to which formerly we now suspect were that sex of A. TORQUEOLA. Capt. Tickell now sends a specimen of a fourth, found together with A. RUFOGULARIS at an elevation of from 3000 to 5000 ft. "They are tame and easily shot as they run along the ground." In A. RUFOGULARIS, both sexes appear to have the chin and throat deep-ferruginous, the former speckled with black, the latter with an inferior black border more or less developed: breast dark ashy, tolerably pure, and passing to white on the middle of the belly: flanks varied with ferruginous on the sides of the feathers, which have an elongated medial white spot, less developed than in the males of A. TORQUEOLA: back plain, or with but the faintest possible indication of terminal dusky margins to the feathers (which must be looked for to be observed at all): the scapularies with large black spots, and scarcely any trace of white medial lines; and the crown brown, often black-spotted, and passing to ashy on the forehead.—A. ATROGULARIS has a very broad white moustachial streak; and the throat black, passing into white below, the latter ill defined and spotted with black, the spots gradually disappearing on the pure ashy breast; no trace of ferruginous on the flanks, which have small narrow white spots, often obsolete or nearly so; crown brown, more or less black-spotted, and passing to ashy on the forehead; and the back conspicuously barred with black, two or three narrow transverse bands upon each feather; scapularies with black spots more or less developed, but with no white mesial streaks, and little trace of rufous or ferruginous.—A. BRUNNEOPECTUS has the breast and flanks tawnyish-brown instead of ashy, with no admixture of ferruginous on the latter, which are spotted quite differently from those of any of the other species; each feather having a large rounded white spot, broad black terminal border, and another spot of black above the white; throat fulvous-white, passing to black in front of the neck, but no white below this as in A. ATROGULARIS.

Rollulus ocellatus,	Hardwicke.	
Rollulus cristatus,	Blyth.	*Green partridge.*
Coturnix communis,	Bonnaterre.	*Common quail.*
Coturnix coromandelica,	Blyth.	*Rain quail.*
Coturnix chinensis,	Gould.	*Painted quail.*

Fam. TINAMIDÆ.(?) Subfam. TURNICINÆ.

Turnix atrogularis,		*Three toed quail.*
ငုံ။ ငုန်။ *gnung.*		
Turnix dussumieri,	Blyth.	*Bustard quail.*

Order VI. GRALLATORES.

Tribe PRESSIROSTRES.

Fam. OTIDÆ. FLORIKENS.

Sypheotides aurigtus, Jardine. *Floriken.*

INCERTÆ SEDIS.

Fam. GLAREOLIDÆ.

Glareola orientalis, Leach.
Glareola lactea, Temm.

Subfam. ESACINÆ.

Esacus recurvirostris, Blyth. *Bastard floriken.*
Oedicnemus crepetans, Blyth. *Thick-knee.*

Subfam. VANELLINÆ.

Pluvianus spinosus, *Spur-winged plover.*
တိတိတူး၊ တိတိဒူး *tie-tie-du.* ငှက်တလိုင်း၊ *hnet-ta-leing.*
Sarciophorus bilobus, Blyth. *Plover.*
Lobivanellus göensis, Gould.

Subfam. CHARADRINÆ.

Squatarola helvetica, Blyth.
Charadrius virginicus, "
Hiaticula geoffroyi, Blyth.
Hiaticula leschenaultii? Blyth.
Hiaticula cantiana, Blyth.
Hiaticula philippina, Sonneret.

Fam. CHIONIDÆ. OYSTER CATCHERS.

Haematopus ostralegus, Linn. *Sea Longshanks.*

Fam. RECURVIROSTRIDÆ. RED-SHANKS, YARD-LEGS.

Himantopus candidus, Bonnat. *White oyster catcher.*
Himantopus intermedius, Blyth. *Intermediate oyster catcher.*
Recurvirostra avocetta, Linn. *Recurved bill.*

Fam. SCOLOPACIDÆ.

Totanus glottis, Gould. *Snippet.*
Totanus stagnatilis, Bechstein.
Totanus fuscus, Blyth.
Totanus calidris, Blyth.
Actitis glapeola, Blyth.
Actitis ochropus, Blyth.
Actitis hypoleucos, Blyth.
Terakia cinerea, Gould.
Limosa aegocephala, Gould.
ဇင်ရော်၊ *Zen-yau.*
Numenius arquata, Linn. *Curlew.*
" phaeopus, " "
မိန်းမလက်သဲငှက်၊ (ကုလားကောက်၊ *Aracan.*) *meingma-let-thai.*

Tringa canutus, Linn. *Sand pipers.*
Tringa subarquata, Gmelin. "
Tringa minuta, Leisler. "
Tringa platyrhincha, Gould. "
Tringa Temminckii, Leisler. "
Eurinorhynchus pygmaeus, Gray. "
Philomachus pugnax, Gould. "
Strepsilas interpres, Gould. *Turnstone.*
Gallinago stenura, Blyth. *Snipe.*
Gallinago scolopacinus, Bonap. "
မြေဝတ်း *myăe-wot.* (ရခိုင်ရေ၌ *Aracan.*) ထိုပက္ခိုနှင့် ထိုပနုအုပ်ထိုင်ထိုနှိုင်း။ ထိုင်ထားဆဲဒေး။
Gallinago gallinula, Blyth.
Rhynchea bengalensis, Hardwicke.

Fam. PALAMEDEIDÆ.

Subfam. PARRINÆ.

Metopidius indicus, Vieillott.
Hydrophasianus chirurgus, Gould.

Fam. GRUIDÆ. CRANES.

Grus antigone, Edwards. *Slate-coloured crane.*
ကြိုးကြော်း *kyo-gya.* ကို၊ ထိုဖြိုး. ထိုင်ထိုးကွါး။ ထိုင်ဒိုင်း။ ထိုင်ကြွဖိုး။ ချိုင်ကိုက္ခုင်း ဟိ။
Grus cinerea, Bechstein. *European crane.*

Tribe CULTRIROSTRES.

Fam. ARDEADÆ.

Falcinellus igneus, Gould. *Ibis, or black curlew.*
Geronticus papillosus, Blyth. *King curlew.*
Threskiornis melanocephalus, Jardine. *Ibis, or white curlew.*
ခရုစုတ်အဖြူ။ *kha-ru-soh a-phyu.*
Tantalus leucocephalus Gmelin. *Gangetic ibis.*
Platalea loucorodia, Linn. *Spoon ibis.*
Anastomus occitans, Blyth. *Open-beak.*
ခရုစုတ်။ *kha-ru-soke.*

Subfam. CICONINÆ. ADJUTANTS.

Mycteria australis, Shaw. *Australian ciconia.*
Ciconia alba, Belon. *White ciconia.*
Ciconia leucocephala, Blyth. *White-headed ciconia.*
Leptoptilos argala, Blyth. *Adjutant. Large-pouched hargila.*
Leptoptilos javanica, Blyth. *Javanese adjutant.*
ထွေးစပ်၊ ခုံးစပ်၊ *dung-sat.* ငှက်ကြီး၊ ထိုဒြ. ထိုင်ဒိုင်း၊

Subfam. ARDEINAE. HERONS AND EGRETS.

The generic Burmese name of herons, is ငြိုင်းbuaing. or ဥငြိုင်း or byaing.

Ardea sumatrana,	Raffles.	*Brown heron.*
Ardea cinerea,	Linn.	*Common British brown heron.*
Ardea purpurea,	Linn.	*Rufous heron.*

ခြုငြိုင်း *khyung-byaing.*

Herodias alba,	Gould.	*White paddy bird.*

ငြိုင်းဖြူ *baing-phyu.* ထိုငှက်ဖြူ. တလေကျဲထား. ထိုဒဲလဲဝါ. ဝါလေးထိပ်.

Herodias intermedia,	Gould.	*Nala egret.*
Herodias garzetta,	Blyth.	
Herodias bubulcus,	Blyth.	
Herodias concolor,	Blyth.	*Demi egret.*
Butorides javanica,	Blyth.	
Ardeola leucoptera,	Hardw.	

ငြိုင်းအောက် *byaing-ouk.*

Nycticorax griseus,	Blyth.	*Night heron.*

ငှက်ငွေ့ လင်းဝက် *hgnet-nwa. len-wot.*

The Burmese suppose the *len-wot* to be a bat, but when Col. Phayre shot one, it proved to be a night heron.

Tigrisoma melanolopha,	Blyth.	*Tiger-bittern.*
Ardetta flavicollis,	Jerdon.	*Yellow-necked black heron.*
Ardetta cinnamomea,	Hardw.	
Ardetta sinensis,	Hardw.	

Tribe MACRODACTYLI.

Fam. RALLIDAE.

Porphyrio poliocephalus,	Latham.	*Sultana coot.*
Gallicrex cristatus,	Blyth.	" "
Porzana phoenicura,	Horsfield.	*Water hens.*

ကလူကွက် *kalu-kwet.*

Porzana maruetta,	Blyth.	
Porzana pygmaea,	Blyth.	
Porzana fusca,	Blyth.	
Rallus striatus,	Linn.	*Rail.*
Rallus indicus,	Blyth,	*Indian rail.*

ရေကြက်မ *yāe-kyet-ma.* ထိုကဲရှ. ထိုဥကူဒုးကွေး

Gallinula chloropus,	Blyth.	*Heron hen.*
Fulica atra,	Linn.	*Coot.*

Order VIII. NATATORES Swimmers.

Tribe Longipennes.

Fam. Laridae. Gulls.

Larus fuscus,	Linn.	*Gull.*
Larus icthyaetus,	Pallas.	
Larus ridibundus,	Linn.	
Larus brunnicephalus,	Jerdon.	

ပြစ်ကွေး ပင်လယ်ကျဉ်ကုလားငှက်။ *penlay-kyet-tu-ywàe.*

ထိန်ကံခိုခိုလဲခို။ ဒုဂ္ဂသိကာမဥ္ဇလဲဃ.

Subfam. Sterninae. Terns.

Rhynchops nigra.		*Scissors bill.*

ပင်လယ်ပေါ်ငှက်၊ *penlay-pau-knet.*

Gelochelidon anglicus,	Wilson.	*Marsh terns.*
Hydrochelidon indica,	Blyth.	"
Thalasseus cristatus,	Gould.	*Sea Swallow.*
Thalasseus bengalensis,	Gould.	*Shore or river tern.*
Seena aurantia,	Hardw.	" " "
Sterna javanica,	Horsfield.	" " "
Sternula minuta,	Wilson.	" " "
Onychoprion melanauchen,	Gould.	*Oceanic terns.*
Onychoprion anasthaetus,	Sonn.	"

မြစ်ငှက်။ *myect-htwäe*—generic for all the terns.

Tribe. TOTIPALMATI,

Fam. Pelecanidæ. Pelican Family.

Phæton æthereus,	Linn.	*Tropic bird.*
Sula fiber,	Gould.	"
Pelicanus javanicus,	Horsfield.	*Pelican.*
Pelicanus philippensis,	Gmelin.	"

ဝံဖို၊ ဝံဖို။ *won-bo.*

Graculus sinensis,		*Cormorant.*
Graculus pygmæus,	Hardw.	"

အောရော၊ *au-rau.* (တင်္ကြီ။ *Aracan.*) *ten-gyie.*

ဒကျီးခဲဒှ. ထိန်ဇိန်ဖို

Potus melanogaster,	Gmelin.	

တင်ကြီ *ten-gyie.* ထိုလဲ၊ ထိန်လဲ။

Tribe LAMELLIROSTRES.

Fam. Anatidae. Geese Family.

Subfam. Phœnicopterinae. Flamingoes.

Phœnicopterus roseus,	Pallas.	*Heron goose.*

Subfam. Anserinae. Geese.

Burnicla indica,	Gould.	*Indian goose.*

ငန်း။ *gnan.*

Dendrocygna major,	Jerdon.	*Perching goose or teal.*
Dendrocygna awsuree,	Blyth.	" "
စစ်စသီ။ *seet-sa-lie.*	ထိုထုထံ၊. ထိုဉ်ဒွဉ်ထံ။	ဘား
Sarcidiornis melanotus,	Pennant.	*Wild duck.*
တောဝမ်းပဲ။ *tau-won-bai.*	ထိုထုမွှု. ကူရူပီ၊	
Casarea leucoptera,	Blyth.	*Shieldrake.*

Subfam. ANATINAE. DUCKS.

The Burmese name of the domestic duck is ဝမ်းပဲ။ *wom-bai,* and the wild species are denominated *tau-wom-bai* or wild wombai. When the Pali name ဟံသာ။ *han-sa* occurs in the Pali books it is rendered by the Burmese translators ဝမ်းပဲဟသီာ။ *wom-bai hen-sa,* or the hensa-duck. So the Pali ရဝိဟံသာ။ *ra-vie-hansa,* or sun-hansa, is translated ရွှေဝမ်းပဲ၊ *shwœ-wombai,* or golden-duck. The hensa then according to the sacred books is a *duck,* and I have heard the name applied by boatmen to teal or wild ducks. See page 128.

Spatula clypeata,	Blyth.	*Typical duck.*
Anas pœcilorhyncha,	Pennant.	
Anas caryophyllacea	Latham.	*Pink-headed duck.*
Defila acuta,	Gould.	*Pin-tailed duck.*
Chaulelasmus streperus,	Blyth.	*Cape duck.*
Mareca penelope,	Gould.	*Nepal duck.*
Querquerdula crecca,	Blyth.	*Crecca duck.*
Querquerdula circia,	Blyth.	*Circia duck.*

Subfam. FULIGULINAE. SEA DUCKS.

Fuligula nyroca,	Blyth.	*Sea duck.*

Fam. PODICIPIDAE. GREBES.

Podiceps philippensis,	Gmelin.	*Grebe.*
Podoa personata,	Gray.	*Diver.*

Mr. Blyth writes recently, that he has received from Major Tickell "a skin of the pomarine Skua, an arctic bird never previously obtained within the tropics."

Fish.

ACANTHOPTERI.

PERCINÆ.

PERCHES.

(Spinous rays in the dorsal fin.)

Perca, *Large perch.*
ငါးကဂတစ် *gna-ka-gateet.*
Percinæ, *Small puch.*
ငါးစဆတ် *gna-sen-zat.*
Lates nobilis, Cuv. *Cockup.*
ငါးကသဘောင် *gna-ka-thaboung.*
Lates, *Large cockup.*
ငါးကသမြှင် *gna-ka-tha-myen.*
Holocentre? *Stone fish.*
ငါးနီး *gna-nie.*
Chanda nalula, Buch. Ham.
ငါးဗျား *gna-bya.*

PERCOPHINAE. PERCIS TRIBE.

Silago acuta, Bleeker. *Silago.*
ငါးပလွေ *gna-palwœ.*

CHAETODONIDAE. BAND-FISH.

Chætodon, *Band-fish.*
ငါးဖခဲ *gna-pa-khai.*
Pomacentrus? *Elephant-ear band-fish.*
ငါးဆင်နှာ *gna-hsen-na.*
Crenidens, *Cuvier.*
ငါးသင်ကုတ်ဖျူး *gna-then kouk-phyu.*
Georges filament-o-sum.
ငါးဆံလျှ *gna-hsan-hla.*

SCIAENINAE. UMBER TRIBE.

Johnius coitor, *Indian whiting.*
ငါးပုတ်သင်။ *gna-puk-then.*
Johnius diacanthus, Lacepede. *Two-spined johnius.*
ငါးပုတ်သင်။ *gna-puk-then*
Johnius chaptis, Buch Ham. *Pythaness.*
နတ်ကတော်။ *nat-ka-dau.*
Otolithus pama, Can. *Otolithus.*
ငါးပြဒ်။ *gna-byeet.*
Otolithus bianritus, Cantor. *Two-eared otolithus.*
ငါးပုတ်သင်။ ငါးပြဒ်။ *gna-puk-then. gna-byeet.*
Corvina solada, Lacep. *Corvina.*
ငါးလောင်းပေါင်။ *gna-loung-poung.*
Sciæna. *Umber.*
ပင်လယ်ငါးပြေမ။ *pen-lay.gna-pyæ-ma.*

MUGILIDAE. MULLET TRIBE.

Mugil, *Large mullet.*
ငါးကဘလူး။ *gna-kabalu.*
Mugil cephalotus, *Large-eyed mullet.*
ငါးစင်း။ *gna-sen.*
Mugil subviridis Valen. *Small mullet.*
ငါးလုံ။ *gnalung.*
Polynemus paradiscus, *Mango fish.*
ငါးပုံနှာ။ *gna-pun-gna.*
Polynemus indicus, Shaw. *King fish.*
ကကူရုံ။ *ka-gu-yan.*
Holynemus tetradactylus, Shaw. *Four-filament polynemu.*
ငါးတယော။ *gna-ta-yau.*

SPIROBRANCHIDAE.

Perca scandens, Cuv. *Climbing perch.*
ငါးပြေမ။ *gna-pyæ-ma.*
Ophiocephalus amphibeus? *Amphibious snake-head.*
ငါးရန်းခေါင်းတို။ *gna-yan-gounto.*
Ophiocephalus, *Spotted snake-head.*
ငါးရန်းပိုင်း။ *gna-yan-daing.*
Ophiocephalus striatus, Cuv. *Striated snake-head.*
ငါးရန်း။ *gna-yan.*
Ophiocephalus, *Banded snake-head.*
Ophiocephalus, *Small snake-head.*
ငါးရန်းပနော်။ *gna-yan-pa-nau.*

SCOMBERIDÆ. MACKEREL TRIBE.

Cybium lineolatum, Cuv. *Tunny or Indian mackerel.*
ကွဲသျှတ်။ *kwone-shat.*

Scomber tysan, Cuv. *Madagascar mackerel.*
ငါးဂျာတ်။ *gna-pyat.*

Rhynchobdella ocillata, *Ophidian.*
ငါးခြွေထိုး။ *gna-mywæ-do.*

Mastacembalus zebrinus, Blyth.

This is undoubtedly my "Banded ophidian" of page 258. My description of the colouring being from the living fish, differs slightly from Mr. Blyth's which was made from a specimen that had been preserved in spirits. Mr. Blyth's description is here appended. M. ZEBRINUS, nobis. Tail detached from the dorsal and anal fins, as in the common M. PANCALUS of Bengal. Series of 28 or 29 dorsal spines. Colour pale brown, deeper along the back; and marked throughout (more distinctly in the young) with dusky transverse stripes, alternating with fainter stripes more or less regular, which latter are often double or more or less divided, and are set off by the narrow pale interspaces,—much as in the 'Dauw' or *original* Zebra (EQUUS BURCHELLII). In the larger specimens the stripes are more or less obsolete, except towards the tail. Dorsal and caudal fins minutely striated; the anal with broad stripes, as on the sides. Our largest specimen, apparently full grown from its bulk, is 8½ in. in length.

Mastacembalus, *Sitang ophidian.*

This is not *M. Zebrinus*, and must be, I think, an undescribed species. It is by far the gayest looking fish of the genus.

Mastacembalus unicolor.

Mr. Blyth had this species, from Major Berdmore at Shwaygyen, of which he writes that it was "4 inches in length, but with 37 dorsal spines (instead of 34) and a row of black spots along the soft dorsal and more obscurely along the anal."

The native names are the same for all the species.

Macrognathus, *Large-snout.*
ငါးရှဉ်း။ *gna-yen.*

Macrognathus, *Toungoo large-snout.*
ငါးရှဉ်း။ *gna-yen.*

ZEINAE. DOREES.

Equula ruconius, *Small doree.*
ပဉ္စလေးငါးစင်စစ်။ *penlay-gna-sen-zat.*

CORYPHÆNIDÆ.

Stromateus niger, Bloch. *Black-pomphret.*
" sinensis, *White* "
ငါးမူငါးပါဒေါင်။ *gna-mu, gna-pamoung.*

Trichiurus haumela, *Ribbon fish.*
ငါးတဆွန်း *gna-takhwon.*

SCORPENIDÆ.

Platecephalus insidiator, Cuv. *Flathead.*

GOBIDÆ. GOBY TRIBE.

Gobius kokius, Cuv. *Goby.*
ကသဖိုးကသတိုး *ka-thabo.*
Gobius changra, Buch. *Point-tailed goby.*
ငါးပြန်း *gna-byan.*
Amblyopus hermannianus, Lacep. *Amblyopus-sucker.*
ငါးပြန်နီး *gna-byannee.*
Periophthalmus, *Periophthalmus, two species.*
ငါးစင်း *gna-zen.*

Mr. Blyth writes: "We have a small PERIOPTHALMUS from Mergui, which, in its colouring, approximates the P. ARGENTILINEATUS, C. and V., but has nearly a slight infuscation of the first dorsal. *D.* 9-13.—*V.* 12. If distinct, P. SCINTILLANS, nobis."

MALACOPTERI.

CYPRININÆ. CARP TRIBE.

(Soft rays in the dorsal fin).

Cyprinus, Buch. *Carp.*
ငါးအုံတုံ *gna-ung-tunn.*
Cirrinus calabasu, *Calabasu carp.*
ငါးနှတ်ပြာ *gna-net-bya.*
Cyprinus nandina, Buch. *Nandina.*
ငါးနှက်ပြာ *gna-net-bya.*
Cyprinus rohita, M'Clell. *Rohita.*
ငါးသိုင်း *gna-thaing.*
Cirrhinus, *Black-lined carp.*
Labeo, M'Clell. *Labeo.*
ငါးမြစ်ခွင်း *gna-myeet-khyen.*
Labeo, *Hog-fish.*
Barbus Mortonius, *Morton barbel.*
ငါးရုတ်နီး *gna-yatnee.*
Barbus, *Long bearded barbel.*
ငါးရုတ်ဝကြီး *gna-yatwet.*

Capoeta macrolepidota, Khul. *Large-scaled capoeta.*
Capoeta. *Small-scaled capoeta.*
Orcinus, *Tavoy mountainbar.*
ငါးကတို့။ *gna-kado?*
Abramis, *Bream.*
ငါးဖန်းမ။ *gna-phan-ma.*
Gobio, *Large gudgeon.*
ငါးချင်း။ *gna-khyen.*
Gobio, M'Clell. *Red-eyed Gudgeon.*
ငါးချင်းမျက်မြိုနီး။ *na-khyen-myet-senee.*
Gonorhynchus, *Gonorhynchus.*
Systomus, *Narrow-mouth carp.*
ငါးစည်ပူ။ *gna-seen-pu.*
Systomus, *Black-band. systom.*
ငါးကြင်းစောက်။ *gna-khyensouk.*
Systomus, *Black & red tailed systomus.*
ငါးခုံးမ။ *gna-khung-ma.*
Systomus sophore, ? M'Clell. *Black spotted systomus.*
ငါးခုံငါခုံမ။ *gna-khung-ma.*
Systomus, *Rose finned systom.*
ငါးခုံကြန်ရွက်။ *gna-khung-kyanrwet.*
Sostomus, *Black tailed systomus.*
ငါးမြီမဲ။ *gna-myee-mai.*
Systomus leptosomus, M'Clell. *Yellow finned systomus.*
Systomus, *Black lined systomus.*
Systomus, *Black-backed systomus.*
ငါးခုံဘုတ်သား။ *gna-khung-bouktha.*
Cyprinus canius, Buch. *Red systomus.*
Systomus immaculatus, M'Clell. *Green-backed systomus.*
Systomus *Toungoo systomus.*
Systomus *Black and red systomus.*
Perilampus, *Perilamp.*
ငါးပေါက်တော။ *gna-pouk-dau.*
Perilampus, *Scarlet-finned perilamp.*
ငါးစည်။ *gna-seen.*
Perilampus, *Yellow finned perilamp.*
" *Red-striped perilamp.*
" *Dog-tongued perilamp.*
" *Black-tailed perilamp.*
Leuciscus, *White fish.*
ငါးစည်ပူ။ *gna-seen-pu.*

Leuciscus, *Tawy white-fish.*
ဖလူးခါ။ *pha-lu kha.*

Opsarius pholicephalus ? *Opsarion.*
ငါးစည်ပူ၊ *gna-seen-pu.*

Opsarius albulus, M'Clell. *White-bellied opsarion.*
ငါးရင်ပေါင်းစာ။ *gna-yen-poung-sa.*

Opsarius bacaila, M'Clell. *Bacaila.*

Cobitis, *Loach.*
ပစုသော။ *pa-su-thau.*

SALMONINÆ. SALMON TRIBE.

Saurus nehereus, Buch. *Bombay duck.*

CLUPINÆ. HERRING TRIBE.

Platygaster affinis,? Swain. *Flat-bellied hering.*
ငါပြား။ *gna-bya.*

Engraulis purava, Buch. Ham. *Anchovy.*
ငါးတန်းရွတ်။ *gna-tan-yuet.* ငါးပြား။

Engraulis ?
ငါးနှံလှတ်။ *gna-khwon-hnyat.*

Setipinna, *Bristle-finned sprat.*
ငါးပြား။ *gna-bya.*

Engraulis melletta, *Sardine.*
ငါးပိန်းနဲစွေ။ *gna-peingnaisay.*

Alosa toli, Cuv. *Malay shad.*
ပရှူးငါး၊ဓားဝယ်ငါး။ *pa-shu-gna, daway-gna.*

Alosa ilisha, Buch. table-fish. *Rangoon shad.*
ငါးသလောက်။ *gna-thalouk.*

Chatæssus chacunda ? *Chatæssus.*

Coilia reynaldi, Cuv. *Tapering herring.*

Notopterus kapirat, *Fresh-water herring.*
ငါးဖယ်။ *gna-phay.*

ESOCINÆ. PIKE TRIBE.

Belone cancila, Buch. *Gar-fish.*
ငါးဖေါင်ရိုး၊ *gna-phoung-yo.*

Belone candimaculata, Cuv. *Gar-fish. Toungoo.*
ငါးဖေါင်ရိုး။ *gna-phoung-yo.*

Hemiramphus, *Halfbilled gar-fish.*
ပင်လယ်ငါးဖေါင်ရိုး၊ *pen-lay-gna-poung-yo.*

Exocetus nigripennis ? *Flying-fish.*
ငါးပြန်။ *gna-pyan.*
Esox, *Pike.*

PLEURONECTIIDÆ. FLAT-FISH TRIBE.

Rhombus maximus ? *Turbot.*
ငါးခွေးသွားပြင်ဝတ်။ *gna-kwæ-sha-pyen-wot.*
Synaptura commersoniana ? Cantor. *Brachirus turbot.*
ငါးခွေးသွား၊ *gna-khwæ-sha.*
Plagusia potus ? Cuv. *Tanasserim sole.*
ငါးခွေးသွား။ *gna-khwæ-sha.*

SILURIDÆ. CAT FISH TRIBE.

Pimelodus, Swain. *Adipose-fin cat fish.*
ငါးတန်၊ *gna-tan.*
Pimilodinæ (Breviceps ?) *Short-headed cat fish.*
ငါးမြင်း။ *gna-myen.*
Pimelodus. Swain. *Eight barbuled cat fish.*
ငါးမြင်းအုပ်ဖါး၊ငါးအုပ်ဖါး။ *gna-myen-oukpha. gna-ouk-pha*
Pimelodus, Cantor. *Large mailed cat-fish.*
ငါးရှေ့။ *gna-young.*
Pimelodus, Swain. *Fresh-water mailed cat-fish.*
ငါးအိုက်။ *gna-aik.*
Pimelodinæ, *Toungoo mailed cat fish.*
Pimelodus pectinidens, Cantor. *Serrate-spined cat fish.*
ငါးရှေ့။ *gna-young.*
Pimelodus, Swain. *Long dorsal-finned cat-fish.*
ငါးစင်ရှိုင်းကျွဲ။ *gna-sen-yaing-kywai.*
Pimelodinæ, *Toungoo long-dorsal cat* "
" *Silvery cat* "
" *Black blotched cat* "
Pimelodus ? Swain. *Topsy-turvey fish.*
ငါးနှောက်သွေး။ *gna-nouk-thwa.*
Arius militarius, Cuv. *Military cat-fish.*
Arius Buchanii, *Buchanan's cat-fish.*
Bagrus cavadius. Cuv. *Small cat-fish.*
Silurus, *Large silure.*
ငါးပတ်။ *gna-pat.*
Ambliceps, Blyth.
Cæ cutiens, " *Small cat-fish.*

This is probably the small cat-fish of page 281. I add Mr. Blyth's description. It is found from Mergui to Toungoo.

AMBLYCEPS, nobis, *n. g.* Affined to OLYRA, McClelland, but the head much broader and flatter, with minute eyes, placed near the hind aperture of the nostrils: two pairs of cirri above and below, the inner above situate between the fore and hind apertures of the nostrils: pectoral and dorsal spines short and concealed, but comparatively robust: the second or adipose dorsal short and low; and the ventrals and anal also short: tail large and moderately furcate: a band of card-like teeth above and below, but no palatal band discernible in the specimen: body subcylindrical, compressed, becoming more so to the tail.

AMB. CÆCUTIENS, nobis, *n. s.* Head broader than the body, flat, obtuse at the muzzle; the mouth moderate, its cleft scarcely continued back laterally; cirri large: the upper labial cirrus reaching to tip of pectoral fin, and the exterior lower one nearly as long. Body long and COBITIS-like. The number of fin-rays is difficult to determine, but seems to be

D. 1-6.—P. 1.2 or 3.—V. 6.—A. 6.

Colour dark brown above, paler beneath. Length of specimen 3 in.

ငါးသံခြိမ်း *gna-than-khyeit.*
Silurus, *Two-barbuled silure.*

ငါးမြင်း *gna-myen.*
Silurus, *Round-tailed cat fish.*

ငါးကျား *gna-kyæ.*
Callichrus, *Fork-tailed cat-fish.*

ငါးနုသန်း *gna-nuthan.*
Callichrus. *Large-forked-tailed cat-fish.*
" *Toungoo cat-fish.*

ငါးနုသံး *gna-nuthan.*
Silonia, *Silonia cat-fish.*

ငါးနုသန်း *gna-nuthan.*
Silurus, *Silvery cat-fish.*

ငါးမြင်းရင်း *gna-myen-yen.*
Ageniosus, *Large barbuleless-cat-fish.*

ငါးခူ *gna-khu.*
Ageniosus, *Small barbuleless-cat-fish.*
Plotosus, *Plotosus cat-fish.*

ငါးခူ *gna-khu.*
Clarias punctatus, Cuv. *Spotted cat-fish.*

ငါးခူ *gna-khu.*
Clarias magory, *Clarias cat-fish.*

ငါးကျောင် *gna-gyoung.*
Sorubium, *Long headed cat-fish.*

Sorubium, *Small sorubium.*
ငါးစင်ရိုင်း *gna-sen-yaing.*
Sorubium, *Shark-snouted cat-fish.*
ငါးရောင်း *gna-young.*
Siluridæ, *Large cat-fish.*
ငါးရွေး *gna-yuae.*

CARTILAGINES. CARTILAGINOUS FISH.

Squalus tigrinus, Linn. *Shark.*
ငါးမန်းဖြူ *gna-man-phyu.* ငါးမန်းကျော်
Sphyrna zygaena, Linn. *Hammer-head shark.*
ငါးမန်းကွေ *gna-man-gyway.*
Pristis semisagittatus, Shaw. *Saw-fish.*
ငါးတတိဝဲ *gna-tawai.*
Rhineodon, *Rhineodon shark.*
ငါးမန်းဟိုင်း *gna-man-haing.*
Rhinobatus, *Rhinobatus ray.*
Hypolophus sephen, Forskal. *Scate.*
လိပ်ကျောက် *leik-kyouk.*
Torpedo ? *Torpedo.*

PLECTOGNATHES. TORTOISE-FORMED FISH.

Tetrodon fluviatilis, Cuvier. *Four-toothed sea-porcupine.*
ငါးပူတင်း *gna-puten.*
Tetrodon maritus, Richardson. *Yellow sea-porcupine.*
Tetrodon cucutia, *Smooth sea-porcupine.*
ငါးပူတင်းသား *gna-puten-tha.*
Lophius ? *Fishing frog.*
ငါးကျောက်ဖား *gna-kyoukpha.*

APODES. EEL TRIBE.

Anguilla bicolor, *Common eel.*
ငါးလင်ပန် *gna-len-ban.*
Anguilla arracana, *Other common eels.*
" brevirostris, "
" nebulosa, "
Thaerodontis reticulata, M'Clell. *Muræna eel.*
Pneumabranchus striatus, M'Clell. *Serpent-hearted eel.*
ငါးရှဉ်း *gna-sheen.*
Ophicardia Phayreana, M'Clell. *Phayre's serpent hearted eel.*
Monopterus javanicus, Lacep.
ငါးရှဉ်းနီး *gna-sheen-nee.*

Ophisternon hepaticus,	M'Clell.	*Serpent-trunked eel.*
Amphipnous cuchia,		*Dondoo paum.*
Conger talabon.	Cuvier.	*Conger eel.*
ငါးငန်းပေါက်		*gna-thembau-pouk.*
Conger bagio,	Buch.	*Conger bagio.*
Cyclopterus,		*Lump fish.*

Just before these pages go to press, Mr. Blyth, reporting on Major Berdmore's last contributions to the museum of the A. S. Bengal, writes: "Of fishes, a very large collection, including numerous new fresh-water species, some of Himalayan types, others akin to those of the plains of India and Lower Bengal. Descriptions of all of them are awaiting publication, but they are far too numerous for introduction in this place. The group of *Cobitidæ* (or Loches), in particular, exhibits an extraordinary development of species and of well marked generic forms in the mountain streams of Burmah".

Reptiles.

CHELONIA. Tortoise tribe.

Testudo radiata, *Red headed land tort oise.*
လိပ်ခေါင်းနီ။ *like-ghoungnee.*
Testudo phayrei, Blyth. *Phayre's tortoise.*
တောလိပ်။ *tau-like.* တောင်လိပ်၊ *toung-like.*
Testudo elongata, *Yellow land tortoise.*
Cistudo dentata, Gray. *Marsh tortoise.*
Platysternon megacephalum, Gray. *Lizard-tailed terrapin.*
Emys ocellata, Dumeril. *Marsh tortoise.*
" punctata, Gray. "
လိပ်တိုက်။ *liek-taik.* လိပ်စောက်၊ *leik-souk.*
Emys dhongoka, *Aracan marsh tortoise.*
လိပ်ပုတ်။ *leik-poke.*
" trivittata, *Three-banded terrapin.*
Emys Berdmorei, Blyth. *Berdmore's terrapin.*
" nigra, " *Black terrapin.*
Tyrse gangetica, *Soft tortoise.*
Chitra indica,
လိပ်ကျား။ *leik-kyæ.*
Chelonia virgata, Cuvier. *Green turtle.*
လိပ်ပြင်ဝန်။ *leik-pyen-won.*
လိပ်ကျား။ *leik-kyæ.*
Chelonia imbricata, Linn. *Tortoise-shell turtle.*
Chelonia olivacea, *Large-headed turtle.*

SAURIA. Saurians.

Crocodilus vulgaris, Cuvier. *Common Crocodile.*
မိးကျောင်း။ *meegyoung.*
Crocodilus porosus, Schneid. *Seychelle.*
မိးကျောင်း။ *meegyoung.*
Gavialis gangeticus, *Gavial.*
Platydactylus gecko, Linn. *Flat-toed gecko.*
တောက်တဲ့။ *touktai.*
Hemidactylus coctaei, *Common* "
အိမ်မြှောင်၊ *eing-hmyoung.*

Hemidactylus frenatus, *Small-thumbed gecko.*
အိမ်မြှောင်။ *eing-hmyoung.*
Gecko verus (triple-tailed,) Blyth. *Mergui gecko.*
Leiurus berdmorei, Blyth. *Berdmore's gecko.*
Plychozoon homolocephalus. *Curious gecko.*

MONITORS.

Hpdrosaurus ? Swain. *Monitor crocodile.*
Monitor ? Cuvier.
ဖွတ်မိကြောင်း။ *phwot-meegyoung.*
Monitor hydrosaurus salvator,
or Varanus bivittatus, Cuvier. *Monitor.*
ဖွတ်ကျား။ *phwot-kya.*
ဖွတ်ကြီ။ *phwot-khyai.*
Varanus bengalensis, *Bengal varan.*
ဖွတ်။ *phwot.*
Empagusia flavescens. *Terrestrial varan.*
ဖွတ်။ *phwot.*
Varanus, *Black* "
ဖွတ်မဲ။ *phwot-mai.*
Varanus, *Maulmain* "
ဖွတ်ညှင်း။ *phwot-hnyen.*
Varanus bicintatus, *Large Arracan* "
ဖွတ်ကျား။ *phwot-kya.*

IGUANA TRIBE.

Calotes versicolor, *Blood sucker.*
ပုတ်သင်။ *pokthen.*
All the Blood-suckers have the same Burmese name.
Calotes rouxi, *Blue blood-sucker.*
" mystaceus, *Green blood-sucker.*
" emma,
Acanthosaura armata, *Armed blood-sucker.*
Dilophyrus grandis, *Yellow spotted blood sucker.*
Draco maculatus, *Flying lizard.*
" lineatus, Aracan.
ပုတ်သင်ပျံ။ *pokthen-byan.*
Leiolepsis Reevesii, *Sand Lizard.*
မဒတ်။ *padat.*
Tachydromus sexlineatus, Daudin. *Long tailed lizard.*

Mr. Blyth writes: "This remarkable lizard, with tail mor than twice as long as the head and body, has previously beer

met with in China, Cochin-China, Java, and Borneo. A specimen procured in Mergui by Mr. Theobald minutely accords with the description by M. M. Dumeril and Bibron in every detail of structure ; but the colouring would seem to be unusually dull. We have no doubt respecting the correctness of the identification. Length of specimen 9¼ in., of which tail 7 in."

Euprepis rufescens, Shaw. *Scink.*
Tiliqua punctata, " "
" hardwickii, " "
" macularia, " "
" rufescens, " "
Lygosoma aurata, "
Aspris Berdmorei, Blyth. *Berdmore's aspris.*

သင်းချော၊ *then-khyau.*
ပုတ်သင်ချော၊ *pok-then-khyau.*
သင်လိက်၊ *then-leike.*

} These Burmese names are aplied to all the species.

Ophiseps tessellatus, Blyth. *Limbless lizard.*

OPHIDIA. VENOMOUS SERPENTS.

Elaps personata, *Fire serpent.*
Elaps intestinalis.
မြွေသားဖြူးအဖမြွေ။ *mywae-tha-mya-apha.*
Bungarus faciatus, Schneid. *Yellow-banded bungarus.*
ငွန်းတော်ကျော်း။ *gnan-dau-kya.*
ငွန်းကွက်၊ *gnan-gwet.*
Bungarus candidus, Linn. *White-banded bungarus.*
ငွန်းဝါ။ *gnan-wa.*
Bungarus flaviceps, *Red-headed bungarus.*
Hamadryas ? *Dusky hamadryad.*
ငွန်းပုတ်။ *gnan-pok.*

One of these serpents, about seven feet long and one foot in circumference was caught in Shwaygyen, and after being secured to a bamboo was brought to Major Berdmore. He sent for a famous Burmese serpent charmer, who met the brute on the verandah in the confident expectation of subduing it, by a few "hays!" a bold front, and a shake of the finger. At first the serpent appeared to cow beneath his glance, but when he approached and put forth his hand, it sprung on his wrist and bit him. The man felt the poison up to his shoulder in an instant, and ran off immediately to his house which was near for an antidote, but he fell exhausted on the threshold and expired in less than half an hour after he was bitten.

Hamadryas ophiophagus, Can. *Belted hamadryad.*

ငန်းသံကွင်း၊ *gnan-than-gwen.*

ငန်းသံကွင်းစွတ်။ *gnan-than-gwen-swot.*

Naja lutescens, Lauren. *Tenasserim Cobra.*

မြေဟောက်း *myway-houk.*

Capt. Smyth killed several cobras at Shwaygyen with lozen shaped mark on the neck.

MANILLA COBRA.

Capt. Smyth met with a snake at Shwaygyen about four feet long covered with yellow lozen-shaped marks on a dark ground, that some called a "Carpet Snake," and others "Cobra de Manilla," whose bite proved fatal to a fowl.

Vipera? *Viper.*

မြေပွေး။ *mywăe-pwăe.*

Trigonocephalus gram. Shaw. *Green viper.*

မြေစိန်း။ *mywăe-seing.*

Hydrus striatus, *Hydrus.*

" nigrocinctus, "

ကျပ်လုံး၊ *kyat-lung.*

Laticauda cutata, *Flat hydrus.*

ကျပ်ဘျား။ *kyat-bya.*

Hydrus gracilus, Shaw. *Slender sea snake.*

INNOCUOUS SERPENTS.

Typhlops braminus, Daudin. *Blind worm.*

မြေဆင်ပျက်၊ *mywae-hsen-pyet.*

Python reticulatus, Schneid. *Python.*

စပါကြီး၊ *saba-gyee.*

Acrochordus javanicus, *Innocuous estuary serpent.*

ကုလားကောက်။ *ku-la-kouk.*

ကနကုပ်။ *ka-na-koke.*

Calamaria obscuro-striata, Blyth. *Calamaria.*

Xenodon purpurascens, *Purple xenodon.*

Lycodon aulicus, Linn. *Carpet snake.*

အိန်ကျွက်မြေ။ *eing-kywet-mywae.*

ကြက်ဌိခိုးမြေ။ *kyetoo-kho-myway.*

Xenopeltis unicolor, *Xenopeltis.*

" concolor.

ရေမြေ၊ *yae-mywae.*

These two species are regarded by Dr. Cantor as varieties of the same species. *X. Concolor* is very common at Toungoo, where the Burmese call it *Yae-mywae,* "Water Snake." It is

often seen rolled up on the muddy banks of the Sitang, and is frequently met in our compounds where to inexperienced eyes, it is sometimes taken for a cobra, being usually of the same size, and of the same dark colour. It may be readily distinguished however both by its head and its peculiar "awl-shaped" tail.

Coluber radiatus, Schlegel. *Striped rat snake.*

တောကြီးလင်း။ *tau-gyeelen.*

လင်းမြွေ။ *len-mywae.*

Coluber korros, Shaw. *Brown-green rat snake.*

လင်းမြွေ။ *len-myway.*

ငနှံးဇောင်း။ *gnan-soung.*

Coluber fasciolatus, *Black and yellow banded rat snake.*

" mucosus, *Brown rat snake.*

Dryinus nasutus, *Ribbon snake.*

မြွေစိန်းမြီးရှည်။ *mywae seing-myee-shae.*

မြွေစိန်း။ *mywae-seing.*

Dipsas cynodon, *Variegated tree snake.*

ရက်ကန်းကြိုးမြွေ။ *yetkan-gyo-mgwae.*

Dipsas multimaculatus, *Spotted* " "

Dipsas ferruginea, Cantor. *Brick coloured tree snake.*

Mr. Blyth says: "A fine adult procured in Mergui by Mr. Theobald is chiefly blackish above, with a series of large pale (but not strongly contrasting) spots along the spine, more or less double and alternating, but the first three or four from the head are single and mesial: lower-parts pale yellow, with a mesial line of irregular black specks, gradually increasing in number and more confluent posteriorly, until, about the middle of the body, the black predominates over the yellow, and finally leaves but a few yellow specks sprinkled upon the black." Of a young specimen he writes: "It would seem that the tail of this young Snake was white or whitish when alive, for its terminal four-fifths, abruptly separated: for Capt. Berdmore designates it 'a small brick coloured Snake with a white tail;' and remarks that it carries this white tail curved up."

Leptophis prasinus, *Leptophis.*

" pictus, "

" rufescens, "

LEPTOPHIS ORNATUS.

A specimen of this snake that was killed running up a post to get into my house at Toungoo, was pronounced by the natives to be deadly poisonous. They thought it to be *gnan-wa*, the white banded bungarus. Such mistakes are so often made that the value of native testimony in matters of ophiology is very little. In this instance, the double row of scales under the tail, without

looking in the mouth, is decisive of the innocuous character of the reptile.

Tropidonotus nigrocinctus, *Red-naped tropidonotus.*
" subminiatus, "
ဒေါင်လန်းနီ။ *doung-lan-nie.*
Tropidonotus zebrinus, Blyth, *Zebra.* "
" angusticeps, " *Narrow-headed* "
" junceus, " *Green with black and white*
" umbratus. [*spots.*
" stolatus, Linne. *Buff-striped tropidonotus.*
မြစ်ငရုပ်မြွေ။ *myetshau-mywæ.*
" schistosus, Daudin. *Black-striped tropidonotus.*
မြစ်ငရုပ်မြွေ။ *myetshau mywæ.*
Homalopis rhinchops, *Water snake.*
ငရဲမြွေ။ *yay-mywæ.*
" enhydris, Schneid. *Iridescent water snake.*
" semizonata, Blyth. *Viper like.*
" plumbea,
" leucobalia, H. Hardwickii.
" hydrina, Cantor.

BATRACHIA. FROG TRIBE.

Rana tigrina, Daudin. *Tiger frog, golden frog.*
ဖား။ *pha,* a generic name for all the frogs.
Rana fusca, Blyth. *Olive-grey frog.*
Rana assimilis.
Rana altilabris, Blyth.
Polypedates leucomystyax, *Tree frog.*
Polypedates lividus, Blyth. *Mergui tree frog.*
Hyla bengalensis, *Bengal tree frog.*
Megalophrys guttulata, *Tree frog.*
Lymnodytes erythræus, Schel.
" nigrovittatus.
Engyostoma interlineatum, Blyth.
" carnaticum.
Engystoma (?) Berdmorei, *Berdmore's frog.*
Rufo melanostictus, Schneid. *Toad.*
ဖားပြုတ်။ *pha-pyok.*

HYLÆDACTYLUS BIVITTATUS, Cantor, (measuring 3⅛ in. over curve of back, from snout to vent; knee to end of longest toe, 3¼ in.)

Since the preceding catalogue was written, Mr. Blyth, noting the specimens received from Major Berdmore at Shwaygyen says: "Of reptiles, many interesting specimens, comprising DRACO LINEATUS, ACANTHOSAURA ARMATA, CALOTES EMMA (very fine), C. VERSICOLOR, LEIOLEPIS REEVESII. ASPRIS BERDMOREI, nobis (fine),

LISSONOTA MACULATA, XENOPELTIS CONCOLOR, PYTHONIA *(n. g.)* SEMIZONATA *(Homolopsis semizonata,* nobis, *J. A. S.* XXIV, 187*)*, PARIAS (D. and B., *nec* Gray) MACULARIUS, *n. s.*, CORONELLA NOTATA, *n. s.*, XENODON PURPURASCENS (several varieties), LEPTOPHIS ORNATA, DIPSAS FERRUGINEA, D. (v. AMBLYCEPHALUS) EOA, HOMOLOPSIS SIEBOLDII (!), H. LEUCOBALIA, NAJA TRIPUDIENS (dark var.), HAMADRYAS VITTATUS, and others unnecessary to mention. Also some *Batrachia*, including an ICTHYOPHIS, which I am necessitated to leave undetermined for the present."

Insects.

COLEOPTERA. Beetles.

Since pages 326-341 went to press, Capt. J. Smyth,* H. M. 69th, has added many new beetles to his collection, collected during a brief residence in Shwaygyen, a few of which will be noted here.

TIGER BEETLES.

Capt. Smyth met with an elegant tiger beetle on the sands of the Sitang where it was found preying on larger species. Its colour is yellow, beautifully scalloped with black, in form to the naked eye of the Templar's cross. It is about an inch long.

Another species is black with yellow markings, about three quarters of an inch long.

Paussus.

The *Paussidæ*, or beetles of the paussus family, are among the most remarkable of the coleoptera, and are rarest in collections. Capt. Smyth has three well marked species. One has black markings on a reddish ground; and another is black, edged with yellow. Both these species Capt. Smyth found in ants' nests that are built in trees.

A third species more typical of the genus than either of the others, flew on to my table at evening, and is jet black with the upper joint of the antennæ expanded into a large round shield. The insect is about half an inch long with a square body, narrow neck and head, and enormously developed antennæ, characteristic of the family.

Shwaygyen Horned Beetle.

A species of Dynastes from Shwaygyen has a horn half an inch long on the head, curving towards a bifed protuberance on the forehead, of nearly the same length. It is of a bright brown colour.

Floral Beetles.

Capt. Smyth collected nine new species of *Cetoniidae*, or floral beetles, at Shwaygyen.

One is large, covered with white scales, like frosted silver.

One is of a brilliant emerald green, with two bright black spots near the apex of each elytra. It is about an inch long, and is one of the most elegant beetles of the tribe.

A third has golden markings on a velvety black ground: a

* Erroneously Capt. L. Smyth on page 326.

fourth has a broad band of yellow across black wing covers; and a fifth has a reddish-brown thorax, black elytra with a large yellow spot in the center of each. A dark chestnut coloured species was found feeding on the leaves of the teak tree. Another, with the margin of a reddish thorax yellow, has black wing covers. One has silvery irregular markings on a dark ground, and the ninth with brown, striated elytra, has a greenish thorax.

Shwaygyen Horia.

Capt. Smyth found two new species of *Horia* at Shwaygyen. One resembles the largest of the Toungoo species, but has yellow markings on a black ground. It is an inch and a half long. The other is an inch long, with the legs and antennæ black, but the wing covers bright crimson.

Weevils.

Capt. Smyth added several species of *Curculionidae*, or weevils, to his collection at Shwaygyen.

Brentus.

One belongs to the sub-family *Brenthides*, the rostrum very narrow, and as long as the body. Another species is of the same tribe, but the thorax is shorter.

Two others belong to other sub-families; one of which is grey with a black St. Andrew's cross on his back; and the other is light brown with white spots.

Capricorn Beetle.

Shwaygyen has furnished Capt. Smyth with fifteen species of Longicomes, or Capricorn beetles. One is a very elegant species, with a tuft of hair on the middle of the antennæ, near the base of the third joint. Several published species have two or more tufts on the antennæ, but this is remarkable in possessing one only. The antennæ are yellow but the tufts are jet black. The thorax is yellow with two longitudinal stripes of black. The body is velvety black, with seventeen yellow spots on each wing cover. It is an inch and a half long. One species is yellowish brown, with white feet and four white spots on each elytra. Another is grey with an eyelet on each wing cover above the hind leg, black with a white center. It is an inch and a half long, and half an inch wide. A third species resembles the above in the general colour, but it has a black patch on the wing covers over the hind legs edged with white. It is an inch and a quarter long, by a quarter of an inch wide. Still another has four white spots on black elytra and is half an inch long. A buff coloured species of saw-beetle has seven spots on each wing cover.

Smyth's Capricorn Beetle.

Prionis Smythii, darkish fulvous, head and thorax black, with

the antennæ dark brown. The basal joint of the antennæ is thickened and nearly globular, like *Cerambix gigantea*. Gnel. The next four are rounded, and the last six are pectinated. The mandibles are placed horizontally, with their extremities curving into a circle, nearly an inch in diameter, armed with large teeth, strongly resembling the stag beetle, *Lucanus cervus*. There is one large tooth near the middle, another near the apex, and three smaller ones between. The thorax, or protonotum, is convex above, and armed on each side with three spines, the center one being much larger than the others. The elytra are deeply margined with three longitudinal stria, surface smooth, and no thorns on either apex or shoulder.

The length of the whole insect is 4½ inches, of which the elytra are 2½, the head and thorax 1. the mandibles 1, and the antennæ are as long as the whole.

This splendid species. perhaps the finest of the tribe in India, has been dedicated to the discoverer Capt. James Smyth, F. R. D. S., H. M., 69th, who has probably collected more species of beetles in Burmah than all previous collectors in the aggregate, rivaling in beauty, and exceeding in rarity his previous collections in South America and the West Indies.

SAGRA.

Capt. Smyth met with a much larger species of Sagra at Shwaygyen than either of the four he found at Toungoo. It is of a dark bright purple colour. The body is an inch long, and the hind legs an inch and a half long with a spur on each tibia. Altogether it is one of the most brilliant and curious insects in the collection.

COLECPTERA.

Cincindelidae,	*Tiger beetle*	6 *species.*
Carebidae,	*Ground* "	34 "
Brachinides,	*Bombardier*	3 "
Gyrinidae,	*Whirling water-beetle.*	
Dytiscus,	*Diver.*	
Hydrophilidae,	*Large water beetle.*	
Necrophaga,	*Sexton-beetle.*	16 *species.*
Paussidae,	*Paussus* "	3 *species.*
Staphylinidae,	*Rove-beetle.*	2 *species.*
Brachelytra,		
Histeridæ,	*Mimic beetle.*	
Lucanidæ,	*Stag* "	
Petalyocera,	*Eye* "	
Scarabæus stercorarius,	*Scarab* "	
Gectrupes "		

ကျွဲချေဝိုး *hywai-khyæpo.*

Ateuchus,		*Hornless scarab* 2 *species.*
Scarabæus atlas,	Dejean.	*Atlas beetle.*
" hector,		
"		*Smooth-horned atlas beetle.*
Dynastes,,		*Short horned* " "
		[2 *species.*

ကြီးချွန်း *kyan-khyæpo.*

Scarabæus,	*Horned scarab.*
Outhophagus,	11 *species.*
Phanæus,	2 "
Melonthidæ,	*Cockchaffer.*
Cetonia,	*Rose chaffer.* 16 *other species.*
Centoniidæ,	*Green rose chaffer.*
Gymnetis,	
Nacruspis,	*Large sentellun.* 25 *species.*
Buprestis,	*Chameleon beetle.*

ပိုးမဲတောင်တာ *po-mai-toungta.*

Buprestis,	*Crimson and green beetle.*
Buprestis,	*Small green.* "
Buprestis,	*Blue buprestis* "
Buprestidæ,	*Toungoo buprestidæ.* 9 *spc.*
Elateridæ,	*Click beetles* 10 *spc.*
Lampyridæ,	*Glow worm.*
Lampyridae,	*Fire fly.* 3 *spc.*

ပိုးစိန်ပြု *po-seing-pyu.*

Lycus,	2 *species.*
Cleridae,	*Azure-winged floral beetle.*
Bostrichidae ?	*Auger beetle.*
Cantharidæ (Mylabris ?)	*Blister fly.*
Horiidae,	4 *species.*
Cossyphus,	*Scale-like beetle.*
Curculionidae,	*Long snouted* " 4 *species.*
Rhynchites,	*Short-necked weevil.*
Brentus,	*Fine-antennæ weevil.* 4 *spc.*
Apoderus,	*Camelopard weevil.*
Rhina,	*Long fore-legged* " 10 *spc.*
"	*Hammer headed weevil.*
Curculioninae,	*Elbow-antennæ* " 30 "
"	*Mango weevil.*
Calandra,	*Palm weevil.*
"	*Bamboo weevil.*
"	*Small palm weevil.*
Longicornes,	*Capricorn beetle.* 44 *species.*
Prionidae,	*Large capricorn beetle.*
"	*Sculptured capricorn beetle.*
"	*Saw beetle.*
Lamia,	*One thorned longicorne.*

Cerambycidæ,	*Musk beetles*	23 *species.*
Sagra,	*Large thighed beetle*	5 "
Cassidæ,	*Tortoise beetles.*	61 "
Alurnus,	*Alurnus,*	
Oedionychis.	*Leaping tortoise beetle*	15 "
Eumolpus,	*Eumolpus,*	6 "
Chrysomela.	*Golden-apple beetle.*	30 "
Cocinella,	*Lady bird beetles.*	4 "

DERMAPTURA. SKIN-WINGED INSECTS.

Forficulidae — *Earwig.*

ORTHOPTERA. STRAIGHT-WINGED INSECTS.

Blattidæ — *Coch roach.*

ဖိုးတတ်။ *po-hat.*

Mantis, — *Soothsayer.*

နှံဗောင်။ *hnan-boung.*

Phasmidæ, — *Phantom insect.*
Phyllium, — *Walking-leaf insect.*
" — *Walking-litchen* "
Bacteria sarmentosa, — *Walking-stick* "
Achetidæ, — *Field cricket.*
Acheta, — *Mole* "
Gryllidæ, Leach. — *Grasshopper.*
Locustariæ, Latreille, — *Locrustes.*

နှံဗောင်။ *hnan-boung.*

Locusta, — *Migratory locust.*

ဆင်ဖိုး။ *hsen-po.*

Truxalis, — *Truxalis.*

NEUROPTERA. NERVE-WINGED INSECTS.

Termitidæ, — *White ant.*

ချ။ khyah.

Libellulidæ, — *Damsel fly.*

ပဇင်း။ pazen.

Myrmeleonidae, — *Ant lion.*

HYMENOPTERA. GAUZE-WINGED INSECTS.

Cynipidae, — *Gall insect.*
Ichneumonidae, — *Ichneumon fly.*
Sphegidae, — *Mason wasp.*

ပဒူ။ padu.

Sphegidae, — *Mining wasp.*
Mutillidae, — *Stinging ant.*

ပရွက်ဆိတ်။ pa-yu-et-hsiek.

Formicidae, *Ant.*
ပရွတ်ဆိတ်။ pa-yu-et-hsiek.
Vespidae, *Wasp and hornet.*
Xylocarpus, *Carpenter bee.*
ပခုံး pa-dung.
Apidae, *Tree bee.*
ပျား pya.
Trigona lœviceps, *Dammer bee.*
ကွဲ kway.

LEPIDOPTERA. SCALE-WINGED INSECTS.

Ornithoptera priamus ? *Priam butterfly.*
လိပ်ပြာ။ leik-bya.
Pieris, *Pieris.*
လိပ်ပြာ leike-bya.
Pontia, *Cabbage butterfly.*
လိပ်ပြာဝါ။ leike-bya-wa.
Pierides, *White butterfly.*
လိပ်ပြာဖြူ။ leike-bya-phyu.
Acherontia atropos ? *Death's-head moth.*
Ægeriidae, *Hornet-hawk moth.*
Phalaena ? *Silk worm.*
Phalena patroclus, *Atlas moth.*
လိပ်ပြာကြီး။ leike-bya-gyee.
Arctiidae, *Woolly-Bear.*
Noctuidae, *Night-moth.*
Geometridae. *Geometrician.*
Yponomeuta, *Ermine Moth.*
Yponomeutidae, *Portable-Case Caterpillar.*
" *Mining Caterpillar.*

HOMOPTERA. LIKE-WINGED INSECTS.

Cicadidae, *Cicada.*
Fulgora (Hotina,) *Lantern Fly.*
Ancyra appendiculata. West. *Ancyra.*
Cercopidae, *Plant lice.*
Psylla, *Woolly Blights.*
Coidae, *Lac coccus.*

HETEROPTERA. DIVERSE-WINGED INSECTS.

Notonectidae, *Water boatman.*
Belostoma indica, " *insect.*
Capt. Smyth has a specimen from Shwaygyen three inches and a half long.
Gerris, *Water skipper.*
ရေဆို။ yae-bo.

Cimex lectularis, *Bed bug.*

ကျန်းပို့ kyan-po.

Scutelleridae, *Winged bug.*
Tingidae, *Green* "
Scutelleridae ? Westwood.

ကျိုင်း gyieng.

Cimex, Lin. *Paddy bug.*
Scuterlleridae.

ကျိုင်း gyieng.

Reduviidae, *Copper-colored land bug.*
Coreidae, *Black land* "
Lygaeidae, *Thick-legged* "

APHANIPTERA. NON-VISIBLE WINGED INSECTS.

Pulicidae, *Flea.*

ခွေးလေး khwae-lae.

DIPTERA. TWO-WINGED INSECTS.

Simulium, *Gnat.*

ဖျုတ် phyuk.

Culividae, *Mosquito.*

ခြင် khyen.

ပိုးလောက်လန်း po-louk-lan. } *Larva of mosquito.*
ပိုးစောက်ထိုး po-souk-hto. }

Tipulides, *Father-long-legs or crane-fly.*
Tabanidae, *Gad-fly.*

မွှတ် hmet.

Tabanidae, *Dog-flea bee.*

ခွေးလျှောဖျား khwae-hlae-pya.

Tabanidae, *Horse-fly.*
Tipulidae (Chironomides,) *Midge.*
Muscidae, *House-fly.*

ယင်ကောင် yen-goung.

Caliphora,—Sarcophaga, *Flesh fly.*
Cecidomyides (Cecidomyia ?) *Paddy* "

ARACHNIDA. SPIDERS AND SCORPIONS.

Aranea, *Domestic spider.*

ပင့်ကူ pen-ku.

Vagabonda, *Leaping spider.*
Salticus ?
Lycosa, *Running* "
Orbiteles (Epeira ?) *Geometric* "
Agelena ? *Grass spider.*
Dolomedes, *Water spider.*

Mygale, *Mygale bear-spider.*
" aricularia ?
တောပင်းရူ tau-pengu.
Scorpio afer, *African scorpion.*
ကင်းမြီးကောက် ken-myee-kouk.
Scorpio, *Brown scorpion.*
ကင်းမြီးကောက် ken-myee-kouk.
Acaridae, *Tick.*
ဖွား hmwa.
Acaridae, *Large tick.*

MYRIAPODA. CENTIPEDS, AND MILLEPEDS.

The Burmese name of the tribe is ကင်းခြေများ ken-khyae-mya, "many footed ken;" and those that roll themselves up, like milleped are denominated ကင်နားသန် ken-na-than, the "ear-ring ken;" or ပိုးနားသန်, po-na-than, the " ear-ring insect."

Scolopendra, *Centiped.*
ကင်း ken,
Scolopendra phosphorea, *Luminous centiped.*
ကင်းစုံး ken-zung.
Julus, *Milleped.*
ကင်း ken.

Mollusks.

CEPHALOPODA. HEAD-FOOTED.

Octopus, *Small cuttle fish.*

ရေကြက်။ yaekyet.

Loligo, *Large cuttle fish.*

Nautilus, *Nautilus.*

ခရုသဖီ။ kha-ru-thapee.

Spirula, *Crooked trumpet.*

ခရုနာမောင်းလိုင်။ kha-ruh-na-moungleing.

TRACHELIPODA. NECK-FOOTED.

Conus, *Cone.*

" betulinus, "

" achatinus, "

Oliva utriculus, *Olive.*

ကျွဲပုတ်။ kywae-pouk.

ခရုသံပတိုး။ kha-ru-thai-pa-hto.

Ancillaria, *Ancillaria.*

Terebellum, *Terebellum.*

Cypræa, *Cowry.*

" arabica, "

" tigrina, "

" annulus, "

ကျွဲ။ kywae.

Ovulum volva, *Weaver's shuttle.*

Marginella, *Lip-margined shell.*

Voluta, *Volute.*

ခရုသင်း။ kha-ru-then.

Columbella duclosiana, Sowerby. *Little dove shell.*

" rhomboidea, Gould.

ခရုသစ်ပင်တက်။ kha-ru-theet-pentet.

Terrebra, *Terrebra.*

Eburna, *Ivory shell.*

Buccinum (Nassa) *Trumpet shell.*

" olivacea "

" gibbosa "

Dolium galea,	*Hogshead shell.*
ဘူရစ်း bu-yeet.	
Harpa ventricosa,	*Ventricose harp.*
Purpura,	*Purple shell.*
Cassis tuberosa,	*Tuberose cassis.*
" rufa,	"
Cassidaria,	*Rhinoceros-head.*
Purpura persica,	*Tyrian-dye shell.*
" calloso,	"
Strombus vittatus,	*Strombus.*
Pteroceras scorpius,	*Spider.*
ခရုကနန်း kha-ru-ganan.	
Triton,	*Conch shell.*
Triton variegatus,	*Variegated triton.*
Murex regius?	*Murex.*
နဂါးခေါင်း naga-ga-goung.	
" haustellum	"
" exustus	"
Murex tribulus,	*Thorny woodcock.*
Ranella,	*Frog-shell.*
Pyrula ficus,	*Fig-like pyrula.*
ခရုသံကြီး kha-ru-than-gyee.	
Pyrula carnaria,	*Bat-like pyrula.*
Pyrula,	*Small pyrula.*
ခရုဝက်တောင်း kha-ru-ka-wet-toung.	
Fusus colus,	*Distaff fusus.*
Cancellaria,	*Fence-pale shell.*
Turbinella,	*Little-wreath* "
Pleurotoma babyloniæ,	*Tower-of-babel.*
Fasciolaria filamentosa,	
Cerithium obtusam,	*Cerithium.*
ခရုကဒုန်း kha-ru-ka-dung.	
Turritella terrebra,	*Screws.*
ခရုစဉ်လိန်း kha-ru-saoleing.	
Littorina,	*Periwinkle.*
Assiminea francesiae,	
Stenothyra monilifera,	
Turbo marmoreus,	*Wreath shell.*
Monodonta,	*One toothed shell.*
Trochus,	*Turk's cap.*
သင်တွံ့း then-twon.	
Rotella restraria,	*Small wheel shell.*
" vesti,	"
ခရုခယာပင်လဲ kha-ru-ya-penlai.	

Solarium perspectivum,		*Staircase trochus.*
Haliotis asinina,		*Sea-ear.*
Stomatella inbricata,		*Little-mouth shell.*
Natica maculosa,		*Natica.*
" lineata,		"
" melanosterna,		"
ခရုယာပင်လဲ။ kha-ru-ya-penlai,		
ခရုဗျက်လုံ။ kha-ru-myet-lung.		
Nerita articulata,		*Partition-lipped shell.*
Neritana capillulata,	Gould.	*Neritina.*
" indica,		
" smithii		"
" humeralis,	Benson.	"
" cryptospira,	"	"
" fuliginosa,	Theobald	"
Aplysia,		*Sea-hare.*
Ampullaria globosa,		*Apple shell.*
လယ်ခရု။ lay-kha-ru.		
ခရုယာကြီး။ kha-ru-ya-gyee.		
Paludina petrosa,	Gould.	*Paludina.*
" doliaris,	"	"
ခရုယာ။ kha-ru-ya.		
Paludina bengalensis,	Lam.	"
" Crassa,	Hutton.	
" malanostoma.		
Amnicola cincta,		*Amnicola.*
Bithinia cerameopoma,	Benson.	*Bithinia.*
" pulchella ?		
Melania herculea,	Gould.	*Melania.*
" pagodula,	"	
" baccata,	"	
" humerosa,	"	
" fluctuosa,	"	
" batana,	"	
" thiarella,	Lam.	
" corrugata,		
" himalania.		
" variabilis,	Benson.	
" lirata,	"	
" tuberculata,	Mull.	
" spinulosa,	Benson.	
" jugicostis,	"	
ခရုအိုဇီ။ kha-ru-o-zee.		
ခရုဇီဇင်။ kha-ru-zeezen.		
Paludomus regulata,	Benson.	

Poludomus lubiosa, "
" ornata, "
Lymnea acuminata, *Lymnea.*
" succines, Desh.
Planorbis indicus, *Planorbis.*
" coromandelicus, Fab.
ခရုပုတ် kha-ru-pok.
Cyclostomidae, *Round-mouth snails.*
*Cyclophorus cornu venatorium Sav.
" cryptomphalus, B.
" fulguratus, Pfr.
" calyx, B.
" Theobaldianus, B.
" haughtoni, mihi.
" affinis, mihi.
" scurra, B.
" balteatus, P.
" aurantiacus, Schurr.
Cylostoma peruoblis, Gould.
" tuba, Sowerby.
" expansus, Pfr.
" scissimargo, B.
Alycœus sculptilis, B.
" armillatus, B.
" umbonalis, B.
" amphora, B.
" pyramidalis, B.
Hydrocena frustrillum, B.
" pyxis, B.
" illex, B.
Rhaphaulus chrysalis, Pfr.
Megalomastoma gravidum, B.
" sectilabre, Gould,
Cyclostoma sectilabrum, Gould.
Pupina artata, B.
" arula, B.
Pterocyclos puliatus, B.
" cetra, B.
Leptopoma aspirans, B.
Otopoma blennus, B.
Auricula judæ midas' ear.
" dactylus, Pfeiff.
" glaus, Benson.
Scarabus plicate,
Succinea semiserica, *Succinea.*

* This list of cyclostomidae is extracted with slight alterations from Mr. Theobald's catalogue.

Achatina octona,		*Achatina.*
" tenuispira.		
Bulimus atricallosus,	Gould.	*Bulimus.*
" moniliferus,	"	
ခရုဖိုင်ချောင်း kha-ru-baing-khyae.		
Bulimus janus,	Pfeiff.	
" theobaldianus,	Benson.	
" putus,	"	
" insularis,	Ehr.	
" gracilis,	H.	
Clausilia insignis,	Gould.	*Clausilia.*
" philippiana,	Pfeiff.	
Pupa mellita,	Gould.	*Pupa.*
" bicolor,	Hutton.	
*Helix oldhami, B.		*Snail.*
" scalpturita, B.		
" bolus, B.		
" pauxillula, B.		
" mensula, B.		
" hariola, B.		
" petila, B.		
" refuga, Gould.		
" pausa, B.		
" rotatoria, V. de Busch.		
" textrina, B.		
" molecula, B.		
" achatina, Gray.		
" H. anguina, Gould.		
" bombax, B.		
" capessens, B.		
" infrendens, B.		
" Pylaica, B.		
" catinus, B.		
" cassidula, B.		
" delibrata, B.		
" Merguiensis, philippi,		
" Gabata, Gould.		
" honesta, Gould.		
" castra, B.		
" refuga var. dextrorsa,		
" Saturnia, Gould,		
" retrorsa, Gould,		
" acerra, B.		
" resplendens, Philippi,		
" anceps, Gould,		
" arx, B.		

*This list of helices is taken from Mr. Theobald's Catalogue.

Helix convallata, B.
" biforcata, B.
" attegia, B.
" ceryx, B.
" artificiosa, B.
" caucia, B.
" forabilis, B.
" perpaula, B.
" levicula, B.
" petasus, B.
" precaria, B.
" Theodori, Philippi,
Streptaxis petiti, Gould.
Hypsclostoma tubiferum, Benson.

GASTEROPODA. BELLY-FOOTED.

Vitrina præstans, *Vitrina.*
Cryptosoma praestans, Theob.
Bulla velum, *Bubble shell.*
ခရုသံကလေး၊ kha-ru-than-galæ.
Patella testudinaria, *Limpet.*
Siphonaria, "
Calyptræa, "
သမီးရှိုး tha-mee-no.
Chiton aculeatus, *Chiton.*
တဂိုး သဂိုး ta-gno. tha-gno.

CONCHIFERA. BIVALVES.

Lingula anatina ? *Tongue shell.*
Anomia,
Placuna, *Chinese window oyster.*
သဘျာ၊ tha-bya.
Ostrea, *Oyster.*
ကမါ၊ကနကမါ၊ kama. ka-na-kama.
Spondylus, *Spondylus.*
Pecten, *Scollop.*
ပဲကွင်ဂျင်း pai-gwen-gyen.
Meleagrina margaritifera, *Pearl oyster.*
Perna, *Perna.*
ကမါခရင်း ka-ma-kha-yen.
Pinna flabellum, *Pinna.*
Mytilus, *Salt water muscle.*
ကြောက်ပင်ဝန်း kyouk-pen-won.
Modiola varicosa, *Modiola.*
ကဘုန်သာ၊ ka-bung tha.

Lithodomus. *Lithodomus.*

ခရုကြောက်ခွံောက်။ kha-ru-kyoukhmouk.

Tridacna gigas, *Giant shell.*

ကျားထက်သဲ။ kyah-let-thai. ကလွန်တောင်။

Unio foliacea, Gould. *Fresh water muscle.*
" crispata, " "
" exolescens, " "
" tavoyensis, " "
Unio generosus, Gould.
" cæruleus, Linn.
" crispisuleatus, Ben.
" pugio, "
" marginalis, Lam.?
" parma, Ben.
" scutum, "
Anodon inoscularus, Gould.
" salweniana, "

ယောက်သွား။ youk-thwa. ပင်ဝန်း။ pen-won.

Nucula turgida, *Nucula.*

ရှပ်။ ခရုနပ်စာ။ shat. kha-ru-nat-sa.

Petunculus, *Petunculus.*
Arca graniosa, *Ark-shell.*
" tortuosa, "

ဂျင်း။ gyen.

Cuculla auriculifera, "

ဂျင်လိန်း။ gyen-leing.

Cardium fimbriatum, *Cockle.*

ခွင်း။ gyen. ရှပ်။ shat.

Cytherea effossa, *Clam.*
Venus,

ရှပ်။ ဝက်နှာ။ ရှပ်ပဆုပ်။ shat.

Cyrena, *River conchaca.*
Corbicula (Cyrena) arata, Benson.
Novaculina gangetica, "
Scaphula pinna, Benson. *Scapula.*
Donax scortum, *Donax.*
" cuneatus.

ထငတ်။ ta-gnat.

Tellina shengleri, *Prominent ligament shell.*
Tellinides timorensis, "

ခရုမင်စာ။ kha-ru-men-sa.

Psammotæa, *Large-blue-shell.*

မျက်။ myet.

Pandora, *Little basket-shell.*

ရှပ်။ shat.

Corbula, *Corbula.*

Solen abbreviatus, *Razor shell.*

" diphas, "

ခရုဆင်နှာမောင်း။ kha-ru-hsen-hna-moung.

Solenocurtus.

ကမဲး။ ka-mai.

Gastrochæna, *Gastrochæna.*

Fistulana lagenula.

Pholas, *Pholas.*

ခရုကြောင့်ခွေတိုက်။ kha-ru-kyouk-hmouk.

Pholas.

ခရုဆင်နှာမောင်း။ kha-ru-hsen-hna-moung.

Teredo navalis, *Borer in tubes.*

" gigan ea ? "

ပလုပ်။ pa-loke.

Aspergillum, *Aspergillum.*

CRUSTACEANS. CRAB TRIBE.

Ocypoda ceratopthalma. *Sand crab.*

ကနန်းမြင်စိုင်။ ganan-myen-saing.

Platyonychus? *Paddling crab.*

ကနန်းထဲ။ ganan-htai.

Galasimus. *Bechoner.*

ကနန်း ganan.

Thelphus. *Red fresh-water crab.*

လယ်ပဇွန်။ lay-pazune.

Gecarcinian ? *Diminutive* "

ကြောက်ကနန်း။ kyouk-ganan.

Eriphia tuberculata, Blyth.

Astacus, *Large river cray fish.*

ပဇွန်တုပ်။ pazun-touk.

Astacus, *Small river* "

ပဇွန်။ pa-zun.

Astacus, *Broad rostrum* "

ပဇွန်စိပ်။ pa-zun-siek.

Gammarus, *Fresh-water shrimp.*

ပဇွန်ရေဆွဲ။ pa-zune-yae-hswai.

Mangrove-swamp prawn.

Squilla, *Sea mantis.*

Pagurus, *Hermit crab.*
ပန်ဇွတ်း pan-zut.
Oniscus, *Sow bug.*
Limulus, *King crab.*
လင်း lan.
Balanus—Ibla. *Barnacle.*
ခရုင်း kha-yen.

ANNELIDA. Worms.

Lumbricus, *Earth-worm.*
တီး tee.
Vermes, *Intestinal worm.*
သန်း than.
Dracunculus, *Guinea worm.*
Gordius, *Hair worm.*
Hirunda, *Land leech.*
ကျွတ်း kywot.
Hirunda, *Water leech.*
မျှော့ hmyau.
Spirobis—Serptrula. *Serpent shell.*

Radiates.

ECHINODERMS. SEA-URCHINS.

Holothuria,	*Sea slug.*
ဆင်မျှော့။ ပင်လယ်ပို။	hsen-hmyau.
Echinus,	*Sea- urchin.*
ကြောက်သဘော။	kyouk-thembau.
Spatangus,	*Oval sea-egg.*
Echinurachnius conchatus,	*White double-starfish.*
Scutella,	*Brown double* "
Asterias,	*Starfish.*

ACALEPHS. SEA NETTLES.

Pulmonigrade acalephæ,	*Sea jelly medusa*
ခူ။ khu.	
Physalis pelagiea,	*Portuguese-man-of war.*

POLYPS. CORALS.

Acinia,	*Sea-anemone.*
Meandrina,	*Brain coral.*
Porites clavaria ?	*Club-shaped porites.*
Isis hippuris ?	*Isis.*
Eschara ?	*Eschara.*
Fungia,	*Fungus coral.*
Tubipora musica,	*Scarlet chain-coral.*
Astrea,	*Star coral.*
Corallium,	*Black* "
"	*Tree* "
"	*Tenasserim red coral.*
Dynamena,	*Moss coral.*
Spongia,	*Sponge.*
ရေမှို။	yæ-hmo.

Minerals.

HYDROGEN GROUP. (1) IRON SECTION.

Gold,

ရွှေ၊ Shwæ.

Platinum,

ရွှေဖြူ၊ Shwæ-phyu. Sheen-than.

Mercury *Quicksilver.*

ပြဒါး၊ ပြတား၊ ပဒါး၊ pa-da. *Sulphuret of mercury,*

ဟင်းသပဒါးရိုင်း၊ hen-tha-pada-yaing. *Cinnabar.*

ဟင်းသပဒါး၊ hen-tha-pada., *Vermillion.*

Silver.

ငွေ၊ ngwæ.

ဘေဒ်၊ bau. *Pure silver.*

မော်ရဂိဝါငွေစေးကျောက်၊ mau-ra-gie-wa-ngwæ-sa-kyouk. *Silver ore.*

Copper.

ကြေးနီ၊ kyæ-nie.

မော်ရဂိဝါကြေးနီစေးကြောက်၊ mau-ra-gie-wa-kyæ-nie-sa-kyouk. *Copper ore.*

Sulphuret of copper. *Malachite.*

Green carbonate of copper,

ဘာလဒုတ္တာ၊ bala-dokta.

Blue carbonate of copper.

Sulphate of " *Blue vitriol, or blue stone.*

ဒုတ္တာ၊ dokta.

Lead, *Lead.*

ခဲပုတ်၊ khai-pok.

ခဲမဝုတ်၊ khai-ma-pok.

Sulphuret of lead, *Galena.*

Red oxide of lead, *Minium.*

ဆုန်း၊ hsung.

ခဲမဝုတ်ပြာနီ၊ kai-ma-pok-pya-nie.

Iron.

သံ၊ than.

Sulphuret of iron, *Iron pyrites.*
ဗဟန်းကျောက် ba-han-gyouk.
သံတိုက်ကျောက် than-taik-kyouk.
Octahedral iron ore, *Loadstone.*
Magnetic oxide of iron.
သံလိုက်ကျောက်။ than-laik-kyouk.
ကျောက်သံစား။ kyouk-than-tsa.
Specular oxide of iron.
Brown hematite, *Brown " "*
Ochery red oxide of iron, *Red ochre.*
ဖြေနီ။ myae-nee.
Argillaceous oxide of iron, *Clay iron stone.*
သံကျောက်။ than-kyouk.
Pisiform oxide of iron.
Bog iron ore.
Sulphate of iron, *Copperas.*
ဘာလဒုတ္ထာ။ bala-dokta.
Carburet of iron, *Plumbago, black lead.*
ခဲနက်။ khai-net.

(2.) TIN SECTION.

Tin.
ခဲမ။ khai-ma.
ခဲမဖြူ။ khai-ma-phyu.

ARSENIC GROUP. (1.) ARSENIC SECTION.

Bismuth.
ကြွပ်။ကျွတ်။ gwote.
Antimony.
တေလေကျောက်။ tae-lae-kyouk,
Sulphuret of antimony.
Arsenic.
Oxide of arsenic, *Arsenic.*
စိန်။ seing.
စိန်ဖြူ။ seing-phyu.
Red sulphuret of arsenic, *Red orpiment, or realger.*
မြင်းသီလာ။ myen-thee-la.
Yellow sulphuret of arsenic, *Yellow orpiment.*
ဆေးဒန်း။ hsae-dan.
ဆေးဒန်းရွှေဝါ။ hsae-dan-shwae-wa.

(2.) SULPHUR SECTION.

Sulphur.

ကန်း kan.

CARBON GROUP. (1.) DIAMOND SECTION.

Diamond, *Adamant.*

စိန်း seing.

Mineral coal.

ကျောက်မီးသွေး kyouk-mee-thwae.

" " *Lignite.*

(2.) GRAPHITE SECTION.

Graphite, *Plumbago, black lead.*

ခဲနက်း khai-net.

" *Tremeneerite.*

Molybdena.

FLUORIDS, CHLORIDS. (1.) CALOMEL DIVISION.

Calomel.

ပဒါးဆီးရှိုး pa-da-hsa-khyo.

(2.) ROCK SALT DIVISION.

Salt.

ဆားး hsa.

Chloride of sodium, *Rock salt.*

Muriate of soda.

သိန္ဓောဆားး theing-dau-hsa.

သစ်ပင်ဆီး theet pen-hsa, Potash, protoxyd of potassium.

Chlorid of Ammonium, *Sal-ammoniac.*

Muriate of ammonia,

ဇဝက်သားး za-wet-tha.

ဇဝကိသားးရေဖြူး za-wet-tha-yae-byan, volatile Alkali.

Fluate of lime, *Fluor spar.*

Fluorid of calcium, "

Chlorophana, "

OXYGEN COMPOUNDS.

OXYDS OF ELEMENTS OF THE HYDROGEN GROUP.

SPINEL GROUP.

Spinel ruby, *Ruby blood-red.*

ကျောက်နီး kyouknee.

ပတ္တမြား battamya.

Balas ruby, " *rose-red.*

Alamandine, " *violet color.*

ပန်ရည်ကျောက်နီး pan-yae-kyouk-nee.

Rubicel, *Ruby orange-red.*

စဗြူကုန်။ seebyu-gung. The inferior varieties.

Pleonaste blackish spinel, *Ceylonite.*

နီလာ။ nee-la.

Ava gem-sand.

ZINCITE GROUP.

Water.

ရေ။ yae.

ရေခဲ။ yae-khai, *Ice.*

ဆီးနှင်း။ hsie-hnen, *Hoar Frost.*

Zinc.

သွတ်။ သွပ်။ thwot.

CORUNDUM GROUP.

Corundum.

စိန်သွေးကျောက်။ seing-thway-kyouk.

ရွှေသွေးကျောက်။ shway-thway-kyouk.

Blue Sapphire, *Common Sapphire.*

နီလာငှက်ခါး။ neela-hgnet-kha.

နီလာစိန်။ neela-seing.

Red sapphire, *Oriental ruby.*

ကျောက်နီ။ kyouk-nee.

ပတ္တမြား။ battamya.

Violet sapphire, " *Amethyst.*

နီလာခရုန်။ neela-khayan.

Yellow sapphire, " *Topaz.*

ဥသဖခွာ။ oukthapha-ya.

Green sapphire, " *Emerald.*

မြ။ mya.

Manganese.

Black oxide of manganese, *Manganese.*

" " " *Black wad.*

OXYGEN COMPOUNDS OF SILICON. QUARTZ GROUP.

Quartz.

Quartz, *Common quartz.*

ဂေါတံ gautan.

Rock crystal, *Crystalized quartz.*

မြိုင်စိန်။ myaing-seing.

ဖန်ကျောက်။ phan-kyouk.

စိန်ပလုပ်။ seing-palok.

Prase, *Green quartz.*
Milky "
Amethyst, *Violet* "
နီလာခရုန်၊ neela-khayan.
ကျောက်ခရုန်ဖွဲ့။ kyouk-khayan-pwen.
Quartz, *Yellow* "
" *Granular* "
ကျောင်၊ kyoung, *Cat's eye.*
မီးခဲကျောက်။ meekhat-kyouk. *Flint.*
Chalcedony, *Common chalcedony.*
မဟူရာဖြူ။ mahuya-phyu,
မဟူရာနီ။ mahuya-nee. *Carnelian or Sard.*
ကြက်သွေး။ kyet-thway, "
မဟူရာဝါ။ mahuyawa, " *yellow variety.*
မဟူရာဖြူကျောင်ဝင်။ mahuya-phyu-kyoung-wen, *Onyx.*
" " *Sardonyx*
" " *Chalcydonyx.*
Heliotrope. *Bloodstone.*
နဂါးသွဲ။ nagathwai.
Agate, *Common agate.*
မဟူရာ၊ mohuya.
မဟူရာကြောင်ဝင်။ mahuya-kyoungwen, *Striped agate.*
Jasper, *Yellow jasper.*
မဟာဆတ်အဝါ။ mahahsat-awa.
Jasper, *Green* "
သင်တွဲဖိနှံကျောက်။ thendwai-seing-kyouk.
Jasper, *Precious* "
နဂါးသွဲ nagathwai.
Jasper, *Striped* "

SILICATES.

Augite.
" Hypersthene.
" Labradore Hornblende.
Hornblende.
Asbestos.
Beryl.
ဖိနှံ။ seing.
Garnet, *Common garnet.*
ပဒေကျောက်။ padai-kyouk.

Almandine, *Precious garnet.*

ကျောက်နီ။ kyouk-nee.

စိမ်းကြူကုံ။ htseebhyugone, *Inferior variety.*

ဂေါမုတ်။ gaumoke. "

Mica.

Muscovite, *Common mica.*

လချေး la-khyae.

Feldspar, *Orthoclase. common feldspar*

Adularia, *Moonstone.*

ကျောင်း။ kyoung.

Andalusite.

Chiastolite.

Tourmaline.

Black tourmaline, *Schorl.*

အပြိုက်နက်။ apyaik-net.

အကျွတ်နက်။ akyoot-net.

သီဟိုလ်စိန်။ thee-ho-seing, *Green tourmaline.*

ဥသဘုရာ။ သီဟိုလ်စိန်။ ouk-tha-phaya, *Yellow tourmaline.*

Indicolite, white variety, *White* "

အကျွတ်ဖြူ။ a-kywotphyu.

အပြိုက်ဖြူ။ a-phyaik-phyu.

Rubelite, *Red* "

Tourmaline rubelite.

စိန်နီ။ seing-nee.

သီဟိုလ်စိန်။ thee-ho-seing, *Ceylon diamond tourmaline,* with the colour expelled.

Talc.

Steatite, *Soapstone.*

ကန်ကူ။ kan-gu.

Serpentine, *Common serpentine.*

ကျောက်စိန်။ kyouk-seing, *Precious serpentine.*

Chlorite.

ကျောက်ပလဲ။ kyouk-pa-lai.

Tantalates.

Wolfram, *Tungstan.*

ခဲမသေး။ khai-ma-thae.

Tungstate of iron.

Hydrous Sulphates.

Gypsum.

Crystalized sulphate of lime, *Selenite.*
Foliated " "
ကျောက်သလင်ဂေါတံ။ kyouktha-len-gautan.
Sulphate of lime, *Fibrous gypsum.*
Sha-koung, (Chinese)
Sulphate of lime, *Granular gypsum.*
Alum.
Sulphate of alumine and potash, *Alum.*
ကျောက်ချဉ်။ kyouk-khyeen.

BORATES.

Borax.
Borate of soda, *Borax.*
လက်ချာ။ let-khya.
လက်ချာရိုင်။ let-khya-yaing. *Tincal.*

NITRATES.

NITRE, *Saltpetre.*
Nitrate of potash,
Prismatic nitre.
ရန်းစိန်။ yan-seing.,

CARBORNATES.

Calcite *Carbonate of Lime.*
ကျောက်စက်။ kyouk-set *Stalactite.*
" *Stalagmite.*
ကျောက်ဖြူနု။ kyouk-phyunu, *Granular Limestone.*
တုံကျောက် tung-kyouk, *Common* "
" *Calcareous Grit.*
မြေဖြူ။ mya-phyu, *Chalk.*
" *Marl.*
" *Calcreous Tufa.*
Magnesian carbonate of lime, *Dolomite.*
အန္ဒကူ။ andaku.
Arugonite, *Needle spar.*
Natron, *Mineral alkali.*
Carbonate of soda, *Natron.*
မြေဆပ်ပြာ။ *myay-hsat-bya.*

RESINS.

Amber, *Yellow Mineral Resin.*
Succin, *Amber.*
Succinum.
ပရင်း။ *paren.*
Naphtha.
ရေနံ။ *Ya-nan, Petroleum.*

Plants.

Besides the plants that I have examined myself, others are enumerated in this catalogue, that have been collected by Carey, Wallich and Griffith, which I have met with in Roxburgh's "Flora Indica," Voigt's "Hortus Suburbanus Calcuttensis," Lindley's "Genera and species of Orchideous plants," Bentham's "Labiatarum Genera et Species," De Candolle's "Prodromus Systematis Naturalis Regni Vegetabilis, Pars V," Wight's "Illustrations of Indian Botany," Wight's "Icones Plantarum Indiæ Orientalis," and Wallich's "Plantæ Asiaticæ Rariores."

The region from which these plants have been collected is nearly confined to Pegu and the Tenasserim Provinces. A few were gathered by Wallich from the banks of the Irrawaddy as far as Ava, and a few from the northward, down from the amber mines. There still remains, wholly unexplored, the country of the Shans, a table land two or three thousand feet above the rivers, between the Salwen and the Irrawaddy in the form of a triangle, with its apex in about the latitude of Toungoo. The area at the summit of this triangle is inhabited exclusively by the Red Karens, and while on a visit among them during the present year, I collected a few plants from this region which were subsequently submitted for determination to Dr. Thomson of the Botanical Gardens; who writes: "The plants are very interesting. I wish we had more from the same interesting country." One of the most common plants is a bramble, and another, not less common, is a splendid thistle; while the mountains that skirt the table land, are covered with with rhodo-dendrons and pines clothed with an *Usnea* resembling a species found on the Alps; all indicative of a Flora allied to European forms.

Many undescribed species will be found designated by the vernacular name of the plant. Thus the sacred Engyen tree of the Budhists, I have recently discovered by the examination of a flowering branch, to be a new species, and not the Pali *Shorea robusta*, or *Vatica robusta*, for which the Burman word stands; and I have designated it in the catalogue, *Vatica engyen*. Again,

there is a remarkable species of Ehretia in the interior, which I believe to be also new; and that I have in like manner entered as *Ehretia yen-yai-myouk-myee.* So in many other instances. It would have been easy for me to have described these plants, and to have given them more classical names; but Griffith undoubtedly collected specimens of most of them, and his collections will, it is hoped, be ultimately examined and described by some scientific botanist, and I have no wish to anticipate him. I have described one plant only, *Pinus Latteri,* and I did so, because I had good reason to believe that Griffith had never seen the tree. Sometimes I have not been able to refer to the description of the plant named by Wallich or others, and the Burman may designate one of those species.

Wallich when on this coast, collected specimens of wood from timber trees, and presented them to the Society of Arts in England. Nearly all had the Burmese names Romanized attached to the specimens, and some with the name of the genus to which the tree belonged, but occasionly with a mark of interrogation. I have never been able to identify many of the Burmese names, owing to the arbitrary manner in which the Burmese characters are represented; and where I have succeeded, I have found some of his generic names with the interrogation mark undoubtedly erroneous; thus, he says: "Laurus, ? *thitya,*" but *thitya* is always applied by the Burmese to a species of gordonia. Again, he says: "Sterculia ? *kuneenee;*" but this Burmese name is confined to dipterocarpus, the wood-oil tree.

Occasionally his specimens were duplicates of the same wood, but with the Burmese name spelled in English two different ways. Thus: "*Townpine,*" is described, without any systematic name; but in another place "Artocarpus" is mentioned and the Burmese name given is "*Toung-ben.*" The two words designate the same tree, *Artocarpus echinatus.* Still, in some instances, where I have been unable to trace him, I have inserted the name in my catalogue on his authority, as he may possibly refer to species with which I am unacquainted. Plants marked exotic, are foreign plants, nearly all the rest are indigenous.

I prefer the classification of Lindley's Vegetable Kingdom to the one I have adopted, but that differs widely from any followed by writers on botany in India; so in order that my catalogue

may be used conveniently with Wight's Prodromus, and Voigt's Catalogue, works which will be standards in India for the next half century, I have conformed to the arrangement of Lindley, which he previous to the last edition of his Natural System.

Where there are well established Burmese names, they will be usually found beneath the systematic ones, but they are often generic and are applied in common to several species. For more than half the plants in the vegetable kingdom, however, the natives have no settled names. Sometimes a tree will have as many denominations as persons are asked for its name; but morfrequently a Burman will reply: "*a-la-ga* tree;" that is, a useless tree, "*sa-ma-hnaing*, not edible." A tree whose fruit is not edible is not considered worthy of a name.

The catalogue of ferns and mosses, as printed in this second edition, was furnished by Rev. C. P. Parish, Chaplain, Maulmain, to whom the catalogue of Phenogamous plants is also indebted for numerous additions, especially the Orchids. A few contributions were made by Dr. D. Brandis, the accomplished botanist who is the superintendent of forests, and a few were taken from the report of his predecessor, Dr. McClelland. These additions are severally distinguished by P., B. and Mc. To plants only known in cultivation, *ex.* is appended to indicate that they are exotics. All others are indigenous.

RANUNCULACEAE. CROWFOOTS.

Clematis,	*Linn*,	Virgin's bower.	
subpeltata?			
hedysarifolia,	*D C.*		
Buchananianum,	"		
Naravelia,	"		
zeylanica,	"		
Nigella,	*Linn.*	Fennel flower.	
sativa,	"		ex.
စမုန်ကြီး sa-mung-net,			
Delphinium,	*Linn*,	Larkspur.	
ajacis,	"		ex.

NYMPHÆACEAE. WATER-LILIES.

Nymphœa,	*Linn*,	Water-lily.
pubescens,	*Willd*,	Lotus.
ကျောဖြူ kya-phyoo.		
rubra,	*Roxb.*	Red water-lily.
ကျောနီ *kya-nee.*		

stellata, *Willd,* Blue water-lily.
ကျာညို။ kya-nyo.
Barclaya, *Wall.*
oblongata, "
ကျာခေါင်းလောင်း။ kya-ghoung-loung.

NELUMBIACEAE. SACRED BEANS.

Nelumbium, *Juss.* Sacred Bean.
speciosum, *Willd.*
ပဒုမ္မာ။ pa-dung-ma.

MYRISTICACEAE. NUTMEGS.

Myristica, *Linn.*
moschata, *Thunb.* Nutmeg Tree. ex.
ဇာဒိဖြိုလ်။ za-te-pho.
amygdalina, *Wall.*
sphœrocarpa, "
toung-sag-ga တောင်စကား။
kywai-thwæ, ကျွဲသွေး။
Knema, *Lour,* Species ?

MAGNOLIACEAE. MAGNOLIADS.

Michelia *Linn.* Champac.
champaca, " ex.
aurantiaca, *Wall*
စံကား။ sa-ga.
Sphenocarpus, "
grandiflorus "
မိုဃ်းကြိုးပန်း။ mo-gyo-ban ?

ANONACEAE. CUSTARD-APPLES.

Anona, *Linn.*
Squamosa, " Custard-apple, ex.
ဩဇာ။ au-za.
reticulata, *Linn.* Bullock's Heart. ex.
muricata, " Sour Sop. ex.
Uvaria, "
odorata, " Sweet-scented Uvaria. ex.
ကဒပ်ငန်း။ ka-dat-gnan.
ta-bwot တပ္ပတ်။ *tha-bwot* သပ္ပတ်။
Uvaria.
tau-ka-dat-gnan, တောကဒပ်ငန်း။

tha-nyo-pra-tha-kwee (Sgau.)
" " " pha-do. "
" " " pree-o. "
" " " pgha-mu. "

Unona, *Linn.*
discolor, *Vahl.*
တနှတ်စဝ tan-nat-sa.
Artabotrys, *Brown.*
odoratissimus, " ex.
Guatteria, *Ruiz.*
anonæfolia, *A. D. C.*
Orophea, *Blum.*
polycarpa, *A. D. C.*
Polyalthia. *Blum.*
fruticans, *A. D. C.*

DILLENIACEAE. Dilleniads.

Dillenia, *Linn.*
ornata, *Wall.* Ornamental Dillenia.
စင်ဗွန်း sen-bown.
scabrella? *Roxb.*
kyet-sen-bown, ကျက်စင်းဗွန်း
Angusta, McClell.
စင်ဗွန်း sen-bown.
senbra, "
ဇင်ဖြွန်း zen-bywon, Brandis
speciosa, "
သဖြူ tha-byu McClell.

APIACEAE. Umbellifers.

Apium, *Hoffm.* Celery.
graveolens, *Linn.* Common Celery. ex.
Petroselinum, *Hoffm.* Parsley.
sativum, " Common Parsley. ex.
Ptychotis, *Kock.*
Ajowan, *D. C.* ex.
Carum, *Kock.* Caraway.
carvi, *Linn.* Common Caraway. ex.
စမွှတ် sa-mwot.
Pimpinella, *Linn.* anise.
involucrata, *Wight.* ex.
စမုန်စပါး sa-mung-sa-ba.
Anethum, *Linn.*
graveolens, " Dill. ex.
စမွတ် sa-mwot.

Sowa, *Roxb.* Sowa. ex.
စမွှေတ်။ sa-myeik.

Pastinaca, *Linn.*
sativa, " Parsnip. ex.
Cuminum, " Cumin.
Cyminum, " ex.
ဇီယာ။ zee-ya.
Coriandrum, " Coriander.
sativum, " ex.
နံနံ။ nan-nan,
Prionitis, *Delabr.* Species ?
Apiaceae.
kyet-khyæ-ban, ကျွဲခြေဝန်း။

HEDERACEAE. IVYWORTS

Hedera, *Will.*
species ? B.
Paratropia, *D. C.*
digitata, *Voigt.* (P. venulosa, *Wight.*)
ဘလူးလက်ဝါး။ ba-loo-let-wa.

VITACEAE. VINEWORTS.

Vitis, *Linn.* Vine.
vinifera, " Grape vine.
စပျစ်။ sa-byeet.
indica. "
ရင်းဒါင်း yen-doung.
quadrungularis, *Wall,* (ta-u-htai, Sgau.)
adnata, "
carnosa, "
lanceolaria,
pedata, "
auriculata, "
wa-young.khyen, ဝရောင်းချဉ်။
yen-hnoung, ရင်းနှောင်း။
bau-sgai-sgau, (Sgau.)
hto-mo-pgha-mai-kwa, "
Leea, *Linn.*
Macrophylla, *Roxb.* ex.
ကျာဘက်ကြီး။ kya-bet-gyee.
crispa, *Linn.*
hirta, "
Staphylea, *Roxb.*
ကလက်။ ka-let.
sanguinea, *Wall.*

OLACACEAE. OLACADS

Olax,	*Linn.*	species?
Ximenia,	*Plum.*	"
TRAPEÆ (HYDROCARYES, WATER NUTS.	*Linn.*)	
Trapa,	*Linn.*	
bispinosa,	"	

ONAGRACEAE. EVENING PRIMROSES.

Jussieua,	*Linn.*	
repens,	"	
villosa,	*Lam.*	
Ludwigia,	*Roxb.*	Water Purslain.
parviflora,	"	

COMBRETACEAE. MYROBALANS.

Terminalia,	*Linn.*	
Catappa,	"	Country Almond.
bialata,	*Wall.*	
Moluccana,	*P.*	
Bellerica,	*Roxb.*	
ဘန်းခါး။ ban-kha.		
Chebula,	*Retz.*	
ကျဇူ။ kya-zoo.		
Violata,		
လဲဘွဲ။ lai-bwai.		Mc.
Pentaptera,	*Roxb.*	
theet-kha, သစ်ခါး။		
sa-kho-pghau,		(Sgau.)
Arjuna,		Mc.
Slabra,		"
တောက်ကျန်း။ touk-kyan.		
Poiverea,	*Comm.*	
Roxburghii,	*D. C.*	
သမာဂကာ။ tha-ma-ka.		
Combretum,	*Lofl.*	
Wightianum,	*Wall.*	
Lumnitzera,	*Wild.*	
racemosa,	"	
မှိုင်း။ hmaing, ယင်ရဲ။ yen-yai.		
Quisqualis,	*Rumph.*	
indica,	*Linn.*	Rangoon Creeper. ex.
ဓာဒဝယ်မှိုင်း။ da-way-hmaing.		

ALANGIACEAE. ALANGIADS.

Alangium,	*Lam.*	
decapetalum,	"	

STYLIDACEÆ. Styleworts.

Stylidium,	*Brown.*	
kunthii,	*Wall.*	P.
tenellum,	*Swartz.*	"

(Another species.)

RHIZOPHORACEAE. Mangroves.

Rhizophora,	*Lam.*	Mangrove.
conjugata,	*Linn.*	
ပြု။ pyu.		
Ceriops,	*Arnott.*	"
Roxburghianus,	"	
ကဘျိုင်။ ka-byain, ကျဘျင်။ kn-byen,		
Kandelia,	*Wight.*	"
Rheedii,	"	
Bruguiera,	*L'Herit.*	"
Rheedii,	*Bl.*	
eriopetala,	*Wight.*	
parviflora,	"	
ပြု။ pyu, စောင်။ soung.		
Carallia,	*Roxb.*	
lucida,	"	
interrina,	*D. C.*	

MEMECYLACEAE. Memecylads.

Memecylon,	*Linn.*	
ramiflorum,	*Lam.*	
မြင်းချေးတညက်။ myen-khæ-ta-nyet.		
amplexicaule,		P.

MELASTOMACEAE. Melastomads.

Melastoma,	*Burm.*	
malabathricum,	*Linn.*	Melastoma.
မျှစ်ပျဲ။ myeet-pyai.		
amœnum,	*Wall.*	
Osbeckia,	*Linn.*	Species?
Sonerila,	*Roxb.*	
elegans,		P.
Medinilla,	*Gandich*	

MYRTACEAE. Myrtle blooms.

Melaleuca,	*Linn.*	
Cajuputi,	*Roxb.*	Cajuput-oil Tree.
Psidium,	*Linn.*	Guava.
pyriferum,	"	" white, ex.
pomiferum,	"	" red "
မာလကာ။ ma-la-ka.		

Myrtus,	*Linn.*	Myrtle.	
communis,	"		ex.
Jambosa,	*D. C.*	Jambo.	
vulgaris,	*Linn.*	Rose Apple.	ex.
malaccensis,	"	Malay Apple.	"
သပြုသပြေ။ tha-byu-tha-byæ,			
nau-ka-phga-htee,		(Sgau.)	
" " "	*kaseu*	"	
Caryophyllus,	*Linn.*		
aromaticus,	"	Clove Tree.	ex.
လေးညင်းပွင့်။ la-nyen-pwen.			
Acmena,	*D. C.*		
leptantha,	*Wight.*		
သပြေ။ tha-byæ.*			
zeylanica,	"		
သပြေဖေါက်။ tha-byæ-pouk.			
bractiolata ?	"		
grata,	*Wall.*		
pulchella,	*Roxb.*		
ကွဲသပြေ။ kywai-tha-byæ.			
Syzygium	*Gart.*		
odoratum,	*D C.*		
Toddalioides,	*Wight.*		
Wallichii,	"		
polyantha,	"		
Jambolanu ?	*Lam.*		
cymosa,	"		
rubens,	*Roxb.*		
grandis,	"		
thumra,	"		
(Eugenia,) formosa,	*Wall.*		
balsamicum.			
myrtifolia,		M'Clell.	
သပြေချဉ်။ tha-byae-khyen			
ternifolia.			
venusta.			
tha-byæ-htan-sheet,	သပြေထမ်ရှစ်။		
" " hsat-khyæ,	သပြေဆယ်ချေး။		
" " ta-o-kyay,	သပြေတအိုကျယ်။		
" " nee,	သပြေနီ။		
kywai-laik-tha-byæ,	ကွဲလိုက်သပြေ။		
tha-byæ-set-ga-læ,	သပြေစကိုကလေ။		

* A generic term for all the species of this and the following genus.

Tristiania,
Burmanica, Griff.
Merguensis, "
Sonneratia, *Linn.*.
acida, *D. C.* Sour Sonneratia.
တဝူးတမူး ta-bu, ta-mu.
apetala, *Buch.* Weeping Sonneratia.
ကမ်ဗလား kam-ba-la.
thaumma, *Wall.*
myouk-gno, မြောက်ငိုး *Brandis.*
Punica, *Linn.*
Granatum, " Pomegranate. ex.
သလဲ tha-lai.

BARRINGTONIACEAE. BARRINGTONIADS.

Barringtonia. *Forst.*
macrostachya, P. Red flowered.
ကျဉ်သားး kyai-tha.
angustata, P. White flowered.
ကျဉ်ကြီးး kyai-gyee.
racemosa, P.
acutangula, McClell.
kyai-tha "
speciosa, "
kyai-gyee, "
ကြည်းး kyee. B.
Careya, *Roxb.*
arborea, " Careya.*
ဘန်ဆွေးး ban-bwæ.
japonica, ex.

LORANTHACEAE. MISTLETOEWORTS.

Loranthus, *Linn.*
kyee-boung, ကြီးပေါင်းး (several species.)
Viscum
monileforme, "Parasite on a Loranthus." P.

CUCURBITACEAE. GOURDS.

Mukia, *Arn.*
scabrella, "
သဖွတ်ခါးး tha-bwot-kha.

* Dr. Falconer found *Careya Sphærica* in the Provinces, and I may be in error in referring the species I have seen to *C. arborea;* or it may be that both species exist under the same native name. I cannot see the trees in flower while this work is going through the press to decide question.

Citrullus, *Schrad.*
Cucurbita, " Water Melon. ex.
ဖိန်သရွါး၊ဖရဲ။ pha-rai.

Momordica, *Linn.*
Charantia, " ex.
ကျကိဟင်းခါး။ kyet-hen-kha.
dioœca, *Roxb.*
စပျက်။ sa-byet.

Luffa, *Cav.*
pentandra, *Roxb.* ex.
သဖွတ်။ tha-bwot.
fœtida, *Cav.* ex.
သဖွတ်ခဲဝါ။ tha-bwot-kha-wai.
tha-bwot-hmwæ. သဖွတ်မွှေး။

Benincasa, *Savi.*
cerifera, " White Gourd, or Pumpkin. ex.
ကျောက်ဖရုံ။ kyouk-pha-yung.

Lagenaria, *Ser.*
vulgaris, " Bottle Gourd, or White Pumpkin. ex.
ဘူးဆင်စွယ်။ boo-hsen-sway.

Trichosanthes, *Linn.*
anguina, " Snake Gourd. ex.
ပဲလင်းမွှေး pai-len-mwæ.
cucumerina, *Linn.* Bitter Gourd. ex.
သဖွတ်ခါး။ tha-bwot-kha.
bracteata, *Voigt.*

Cucumis, *Linn.*
Melo, " Musk Melon. ex.
သခွါးမွှေး။ tha-khwa-hmwæ.
sativus, *Linn.* Cucumber. ex.
utilissimus, *Roxb.*
သခွါး။ tha-khwa.
tha-khwa-khyen, သခွါးခြင်။
" " me-gyoung-oo, " မြကျောင်းဥ။
" " kouk-yen, " ကောက်ရင်း။
" " lat, " လပ်။
htee-htouk-soo, (Pwe.

Cucurbita, *Linn.*
maxima, *Duch.* Red Gourd, or Squash Gourd. ex.
ရွှေဖရုံ shwæ-pha-yung.
pha-yung-kha, ဖရုံခါး
Coccinia, *Wight.*
grandis, *Voigt.*
ken-bung. ကင်းဆုံ
tsa-tha-khwa, စာသခွါး
Zanonia, *Linn.*
kyee-aa, ကြီးအာ
zehneria, *Endl.*
" One species with sagitate leaves." P.
Cucurbitaceae,
boo-kha, ဘူးခါး
tha-ka-hai. thai-thau. (Sgau.)

CACTACEAE. INDIAN FIGS.

Opuntia, *Tournef.*
Dillenii, *Haw.* Prickly pear. ex.
ကလောစောင်း ka-la-zoung.
Cochinillifera, *Haw.* ex.
ကလောစောင်းလက်ဝါး ka-la-zoung-let-wa.
Pereskia, *Plum.*
Bleo, *Humb.* ex.

HOMALIACEAE. HOMALIADS.

Blackwellia, *Commers.*
spiralis, *Wall.*
Homalium, *Jacq.*
tomentosum,
myouk-kyen, *Benth.* P.

MESEMBRYACEAE. FIG-MARYGOLDS.

Glinus, *Linn.*
dictamnoides, "

BEGONIACEAE. BEGONIADS.

Begonia, *Linn.*
sinuata, " "I find ten species." P.
kyouk-khen-boung, ကျောက်ချဉ်ထောင်

BRASSICACEAE. CRUCIFERS.

Nasturtium, *Brown.*
officinale, " Water Cress. ex.
New species, *Griff.*

Cochlearia, *Tournef.*
Armoracia, *Linn.* Horse-radish. ex.
Lepidium, "
sativum, " Garden Cress. ex.
စမုန်နီ၊ sa-mung-nee.
Brassica, *Linn.*
oleracea, " Cabbage. ex.
သဳထော်ဘမုန်လာ၊ thæm-bau-mung-la.
Rapa, *Linn.* Turnip. ex.
မုန်လာဥဝိုင်း၊ mung-la-oo-waing.
Sinapis, *Linn.*
dichotoma, *Mc Clell.*
mung-nyen, မုန်ညင်း၊
tha-ba-mee, (Sgau.)
Raphanus, *Linn.*
sativus, " Radish. ex.
မုန်လာ၊ mung-la.

CAPPARIDACEAE. Capers.

Polanisia, *Rafin.*
icosandra, *Wight.*
Cratœva, *Linn.*
Roxburghii, *Brown.* Three-leaved Caper. ex.
ကတတ်၊ ka-dat. တက္ကဒွန်၊ tekka-dwon.
Capparis, *Linn.*
Pandurata,
zelanica, P.
than-yeet, သံရဲ၌ သံရဲကို၊

RESEDACEAE. Weldworts.

Reseda, *Linn.*
odorata, " Mignonette. ex.

VIOLACEAE. Violetworts.

Viola, *Linn.* Violet.
odorata, " Sweet Violet. ex.

MORINGACEAE. Moringads.

Moringa, *Burm.* Horse-radish Tree.
pterygosperma, *Gartn.* Oil-of-ben Tree. ex.
ဒသလွန်၊ da-tha-lwon, တန်သလွန်၊

DROSERACEAE. Sundews.

Drosera, *Linn.*
indica, "
Peltata, *Wight.*

Burmanni, *Vahl.*
ကျေးသံပန်။ kyæ-than-ban.
မိုဃ်းတွင်သေ။ mo-dwen-thæ.

PASSIFLORACEAE. PASSIONWORTS.

Passiflora, *Linn.* Passion-flower.
laurifolia, " Laurel-leaved Passion flower, or Water-lemon Vine. ex.
အာသာဝတီ။ a-tha-wa-dee.*
biflora, *Lam.* ex.
quadrangularis, *Linn.* Granadilla. ex.
fœtida, *Cav.* Fœtid Passion Flower.
filamentosa, *Willd.* ex.
Murucuia, *Tournef.*
ocellata, *Pers.* ex.

PAPAYACEAE. PAPAYADS.

Carica, *Linn.*
Papaya, " Pawpaw. ex.
သဘော်သီး။ them-bau-thee.

PANGIACEAE. PANGIADS.

Gynocardia, *Brown.*
odorata, *Roxb.* McClell.
Taliennoe. "

FLACOURTIACEAE. FLACOURTIADS.

Flacourtia, *L'Herit.*
inermis, *Roxb.*
cataphracta, *McClell.*

TURNERACEAE. TURNEBADS.

Turnera, *Lin.*
trioniflora, *Sims.* Laughing Flower ex.
ulmiflora, *Lin.* "

BIXACEAE. BIXADS.

Bixa, *Lin.*
Orellana, " Arnotto ex.
သီတင်း။ ပန်း။ thee-den. pan.

GARCINIACEAE. GUTTIFERS.

Garcinia, *Lin.*
mangostana, " Mangosteen. ex.
မင်ကု။ men-gu.
cornea, "
Garcinia,

* Applied to all the species of the genus.

Roxburghii, *Wight.*
cowa, *McClell.*
တောင်တလဲ။ toung-da-lai.
elliptica, *Wall.* Gamboge Tree.
သနပ်တော်။ tha-nat-dau.
pictoria, *Roxb.*
သနပ်တော်။ tha-nat-dau.
Merguensis, *Wight.*
speciosa, *Wall.*
pa-gyay-theing, ပကျယ်သိန်း။
pa-ra-wa, ပရဝါ။
mek-len, မက်လင်း။

Xanthochymus
ovalifolius, *McClell.*
pictorius, "

Mesua, *Lin.* Singalese Iron-wood Tree.
ferrea, " Nagakeshura. ex.
pedunculata, *Wight.*
ကကော်။ ken-gau. (generic.)

Calophyllum, *Lin.*
Inophyllum, " Fragrant Calophyllum. ex.
ပုဖ်ညက်။ phung-nyet.
Burmanni, *Wight.*
longifolium, *McClell.*
သရဘီ။ tha-ra-bee,

Gynotroches, *Bl.*
axillaris, " P.

Ancistrolobus.
carnea. *McClell.*
ဆောင်ကလေး။ soung-ga-læ.
mollis, *McClell.*
ရင်ဘဲငုံ။ yen-bya.

OLACINEAE.

Ximenia.
americana?
ပဲလယ်ဆီ။ pen-lay-hsee.

PITTOSPORACEAE.

Pittosporum, *Banks.*
species?

HYPERICACEAE. TUTSANS.

Norysca, *Spach.*
chinensis, *Voigt.* ex.

Brathys, *Mnt.*
japonica, *Wight.*
Hypericum, *Lin.* St John's Wort. (species ?)

TERNSTROMIACEAE. THEADS.

Anneslea, *Wall.*
fragrans, "
Eurya, *Thunb.*
angustifolia, *Wight.*
thaung ? *Wall.*
Gordonia, *Ellis.*
floribunda. *Wall.*
သစ်ယား။ theet-ya.
a-nan-pho, အနန်းဖို။
Thea, *Lin.* Tea Plant.
chinensis,
Cochlospermum.
gossypium. *McClell.*
Ternstromiaceæ,
puzzeen-zwa, ပုဇွန်စွာ။ *Wall.*

SAPINDACEAE. SOAPWORTS.

Cardiospermum, *Lin.* Heart-seed.
Halicacabum, " ex.
မလမဲ။ ma-la-mai. (generic.)
canescens, *Wall.*
Sioja, *Buch.*
sanguinaria, "
Sapindus, *Lin.* Soapberry Tree.
saponaria, " ex.
rubiginosus, *Roxb.*
hseik-khyæ. ဆိတ်ချေး။ ex.
Polyphylus, *Roxb.*
Cupania *Plum.*
sapida, *Cambess.* Akee Tree. ex.
Baccaurea, *Lour.*
Pierardi, *Buch.* Lutqua.
Nephelium, *Lin.*
Lichi, *Wight.* Lichi. ex.
longan, *Cambess.*
ကျက်မောက်။ kyet-mouk.
Schleichera, *Wild.*
kyet-mouk, ကြက်မောက်။
hsen-kyet-mouk, ဆင်ကြက်မောက်။

tha-ka-peu-mæ-sai-ghau. (Sgau.)
" " " hto-æ-kau, "
Pierardia, *Jack.*
ကနုဖိုး ka-na-zo. *Wall.*
Stemonurus, *Blum.*
species ?
Melicocca,
trijuga, *McClell.*
ကျိုးး kyo..
Dodonæa, *Linn.*
Burmanniana, *D. C.*
Sapindaceæ.
ma-khyee-pouk, မချည်းပေါက်။

MILLINGTONIACEÆ.

Millingtonia, (Meliosma, *Blum.*)
simplicifolia, *McClell.*

POLYGALACEAE. MILKWORTS.

Polygala, *Linn.*
hyalina, *Wall.* P.
Salomonia, *Lour.*
three species. *Griff.*
Xanthophyllum, *Roxb.*
sa-phew, *Wall.* (Two other species.)

ELATINACEAE. WATER-PEPPERS.

Bergia, *Linn.*
verticillata, *Willd.*
ammannoides, *Roxb.*

STERCULIACEAE. STERCULIADS.

Isora, *Schott.*
corylifolia, " (fruit in bazar.)
သူငယ်ချေးး thu-gnay-khyæ.
Helicteres, *Linn.*
elongata, *Wall.*
pulchra, "
Heritiera, *Ait.*
minor, *Lam.* Soondree.
litoralis.
ကနုဖိုး ka-na-zo.
wet-shau, ဝက်ရှဉ်း *Brandis.*
Sterculia *Linn.*
fœtida, " Fœtid Sterculia.
ထက်ခုတ်း let-khok.

alata, *Roxb.* Boodh's cocoanut.
ornata, *Wall.*
shau-nee, ရှော်နီ။
shau-dung, ရှော်ဒုမ်း။
theet-ka-do, သစ်ကတိုး။ *Wall.*
Namosa, *McClell.*
campalunata, "
piperifolia, "
colorata, "
Southwellia, *Salisb.*
Balanghas, *Schott.* China chesnut.
versicolor, *Wall.*
Scaphium, *Endl.*
Wallichii, "
Durio, *Lin.*
zibethinus, " Dorian. ex.
ဒုရည်း။ du-yeen.
du-yeen-yaing, ဒုရည်းရိုင်း။
Bombax
heterophylla, *McClell.* Cotton tree.
die-du-let-pan, ဒိဒုလက်ပံ။
die-tuk, ဒိတုပီ။ *Brandis.*
Gossampinus, *Buch.*
Rumphii, *Schott.* White silk-Cotton Tree. ex.
သဘော်လဲ။ thæm-bau-lai.
Salmalia, *Schott.*
malabarica, " Red Silk-Cotton Tree.
လက်ပံ။ let-pan, လဲ။ lai.
insignis, "

BYTTNERIACEAE. BYTTNERIADS.

Theobroma, *Lin.*
Cacao, " Chocolate-nut Tree. ex.
Waltheria, "
indica, "
Pentapetes, "
phœnicea, "
Melhania, *Forsk.*
Hamiltoniana, *Wall.*
Pterospermum, *Schreb.*
aceroides, *Wall.*
acerifolium, *Wild.*
တောင်ဖက်ဝမ်း။ toung-phet-won.
Subacerifolium, *McClell.*
နာကြီး။ ⌐ a-gee. "

semisagittatum.	*P.*		
lanceœfolium,	"		
Kydia,			
calycina,	*McClell.*		
ဗုတ်ဓဲစာ။ boke-may-za.			
Eriolœna,	*D C.*		
Candollii,	*Wall.*		
tilifolia,	*McClell.*		
htwa-nie, ထွနီ။ လွနီ။	*B.*		
လွဘို။ hlwa-bo ?			
Microlæna,	*Wall.*		
spectabilis,	*McClell.*		

MALVACEAE. MALLOWWORTS.

Malva			
tiliæfolia.	*McClell.*		
cuneifolia,	"		
Althea,	*Lin.*		
rosea,	*Cav.*	Hollyhock.	ex.
Urena,	*Lin.*		
lobata,	"		
speciosa,	*Wall.*		
rigida,	"		
macrocarpa,	"		
ကပ်စေးနဲ။ ဝက်ချေးပန့်*။ kat-sæ-nai, wet-khyæ-pa-nai,			
Sida,	*Lin.*		
acuta,	*Burm.*		
humilis,	*Willd.*		
cordifolia,	*Lin.*		
stipulata,	*Pav.*		
ဗျင်ဒန်းငလင်*။ pyen-dan-gna-len,			
Abutilon,	*Monch.*		
graveolens,	*Wight.*		ex.
indicum,	*G. Don.*	Country Mallow-Leaf.	
သားမချုပ်။ tha-ma-khyoke.			
striatum.			
Pavonia,	*Cav.*		
rosea,	*Wall.*		
Hibiscus,	*Lin.*		
surrattensis,	"		
Lindleyi,	*Wall.*		
Lampas,	*Cav.*		
သင်ပန်း။ then-ban.			
Lunarifolius,	*Willd.*		

* Applied to all the species.

Rosa Sinensis, *Lin.* Shoe Flower. ex.
rubro-plenus, double-flowered red.
flava " " " yellow.
carneo " " " flesh-colour.
luteo " " " light-yellow.
variegato " " " variegated.
ခေါင်ရုံး khoung-yan.

Hibiscus,
violaceus, *McClell.*
hirtus, *Linn.*
cannabinus, "
vitifolius, "
mutabilis. " Changeable Rose Hibiscus. ex.
Sabdariffa, " Roselle. "
သဘော်ချဉ်ပေါင်း thæm-bau-kyhen-boung,
tau-kyhen-boung, တောချဉ်ပေါင်း
khyen-boung-phyoo, ချဉ်ပေါင်ဖြူ
longifolius, *McClell.*
Abelmoschus, *Medik.*
esculentus, *Wight.* Okra. ex.
ရုံးမတီ ရုံးမတော yung-ma-dæ.
moschatus, *Monch.* Musk Mallow, or Musk Plant.
ဘလူဝါ ba-lu-wa.
crinitus, *Wall.* (Bamia crinitata ?)
Paritium, *St. Hil.*
macrophyllum, *G. Don.*
ဘက်မွေ့ရှော် bet-mwæ-shau.
tiliaceum, *St. Hil.* Tortuous Hibiscus.
လျည်ညာရှော် lyee-nya-sha.
Thespesia, *Corr.*
populnea, " Poplar Hibiscus. ex.
Gossypium, *Lin.* Cotton.
acuminatum, *Roxb.* Pernambuco Cotton. ex.
ဝါကုလာ wa-ku-la.
herbaceum, *Lin.* Native Cotton. ex.
ဝါ wa.
barbadense, *Lin.* Sea-Island Cotton. ex.
aboreum, " Tree Cotton.
နွဲဝါ nu-wa.

DIPTEROCARPACEAE. DIPTERADS.

Vateria, *Lin.* Gum Anime, or Piney Varnish Tree.

Roxburghiana, *Wight.*
လက်တောက်။ let-touk.
pan-theet-ya, ပန်းသစ်ယာ။
Vatica, *Lin.*
obtusa, *Wall.*
robusta.
en-khyen, အင်ကျင်း။
ka-nyen-pyan, ကညင်ပြန်။
koung-hmu, ကောင်းမှု။
Dipterocarpus, *Gartn.* Wood-oil Tree.
lœvis. *Buch.* Wood-oil Copaiva Tree.
ကညည်နီ။ ka-nyeen-nee.
ကညည်ဖြူ။ ka-nyeen-phu.
alatus, *Roxb.*
grandiflora, *Wall.*
အင်း။ en.
Hopea, *Wall.*
oderata, "
သင်ကန်း။ then-gan.
then-gan-pha-yung, သင်ကန်းဖျင်း။
floribunda, *Wall.* tantheya.
Dipterocarpaceæ.
ကဒွတ်။ ka-dwot.

TILIACEAE. LINDEN BLOOMS.

Corchorus, *Lin.*
trilocularis, "
olitorius, "
capsularis, "
fascus, *McClell.*
Triumfetta, *Lin.*
lobata, *McClell.*
bet-won, ဗက်ဝန်း။
Grewia, *Lin.*
zilefolia, မှိုအ။ hmo-a.
pilosa, *Lam.*
lævigata, *Vahl.*
viminea, *Wall.*
humilis, "
microstemma, "
floribunda, "
မြတ်ယာ။ myat-ya.
ta-yau, တရော်။ သရော်။

asiatica, *McClell.*
spectabilis, "
Hookerii, "
Berrya, *Roxb.*
Ammonilla ? " Trincomalee wood.
Monocera, *Jack.*
Griffithii, *Wight.*
Elæocarpus, *Lin.*
angustifolius,
longifolius, *Bl.*
tau-man-gyee, တောမန်ကျည်း။
than-lwen, သံလွင်။
wa-hso-ban, ဝါဆိုပန်း။

LYTHRACEAE. Loosestrifes.

Ammannia, *Lin.*
vesicatoria, *Roxb.*
indica, *Lam.*
Cuphea, *Jacq.* (Species ?)
Lawsonia, *Lin.* Cypress Plant, Camphire, or Henna Tree. ex.
alba, *Lam.*
ခဓိး။ dan.
Lagerstrœmia, *Lin.*
indica, " Indian Lagerstrœmia. ex.
Reginæ *Roxb.* Jarool.
macrocarpa, *Wall.* "
ခရမောင်ဒိုးဗျင်းမ။ pyen-ma.
kha-moung-thway, ခရမောင်းသွယ်။
" phyu, ခရမောင်းဖြူ။
glomerata, *McClell.*
သစ်ဖြူ။ theet-phyu.
hlee-za, လှည့်စား။ B.
kung-pyen-ma, ကုံဗျင်းမ "
Duabanga ? *Buch.*
Sonneratioides, " (Lagerstrœmia grandiflora, *Roxb.*)
Pemphis, *Forst.*
acidula, "

MELIACEAE. Meliads.

Melia, *Lin.*
azedarach, " Persian Lilac, Pride-of-China, Pride-of-India, or Bead Tree. ex.
ကမာခါး။ ka-ma-kha.

Azadirachta, *Ad. Juss.* Neem Tree
indica, " " ex.
သတော်ကမာခါး။ them-bau-ka-ma-kha.
ka-ma-a-pæ, (Pwo.)
Mallea, *Ad. Juss.*
intergerrima, *Wall.*
Walsura, *Roxb.*
villosa, *Wight.*
piscidia, *McClell.*
joe-boe.
Aglaia.
spectabilis, *McClell.*
rohitoca, "
ခရောကရိုး။ khayau kayoe.
Gelonium.
bifarium, *McClell.*
ဆဲသံဘျာ။ hsai-than-byah.
Grislea.
tomentosa, *McClell.*
Sandoricum, *Cav.*
indicum, " ex.
သစ်တို။ theet-to.
Xylocarpus, *Kon.*
Granatum, " Sea Cocoanut.
ပင်လယ်အုန်း။ pen-lai-ung.
keannan, *Wall.* ကျတ်နှံ။
Carapa, *Aubl.*
taila-oon, *Wall.*
Meliaceae.
kauzuo, kuzzo, "

CEDRELACEAE. CEDRELADS.

Swietenia, *Lin.*
Mahagoni, " Mahogony Tree. ex.
chikrassee, *Roxb.* *McClell.*
Cedrela,
toona,
သစ်ကတိုး။ theet-ka-to.

AURANTIACEAE. CITRONWORTS.

Triphasia, *Lour.*
trifoliata, *D. C.* Three-leaved Triphasia. ex.
Limonia, *Linn.*
alternans, *Wall.*
carnosa, *McClell.*
tau-shouk, တောရှောက်။
Glycosmis, *Corr.*
arborea, *D C.*

Murraya, *Kon.*
exotica, *Lin.* Cosmetic-bark Tree.
သနပ်ခါး tha-nat-kha.
may-kay, မယ်ကယ်၊ *Wall.*
Luvunga, *Buch.*
tavoyana, *Lindl.*
Feronia, *Corr.*
Elephantum, " Wood-apple. ex.
မှန်၊ hman.
Ægle, *Corr.*
Marmelos, " Bengal Quince. ex.
ဥဂွစ်၊ oo-sheet,
Citrus, *Lin.*
decumana, " Shaddock or pumplemuss. ex.
ရှောက်တုံဗိုး၊ shouk-tung-o.
aurantium, *Lin.* Orange. ex.
လိမ်မော်၊ lieng-mau.
sung-zen, စုမ်ဆင်၊
bergamia, *Risso.* Sour Lime. ex.
သံဗရာ၊ရှောက်၊ than-ba.ya, shouk.
limetta, *Risso.* Sweet Lime. ex.
ရှောက်လိမ်မော်၊ ရှောက်ချို၊ shouk-lieng-mau, shouk-khyo.
medica, *Lin* Common Citron. ex.
ရှောက်တခွား၊ shouk-ta-khwa.
torosa? Double-leaved Citron. ex.
ရှောက်ဝုတ်၊ shouk-pouk.
shouk-kha, ရှောက်ခါး၊

RHAMNACEAE. Buckthornworts.

Ziziphus, *Tournef.*
Jujuba, *Lam.* Jujube Tree. ex.
ဇီး၊ hzee.
Œnoblia, *Schult.*
tau-hzee, တောဇီး၊
pen-lay- hzee, ပင်လယ်ဇီး၊
Ventilago, *Gartn.*
maderspatana, "
Colubrina, *Richt.*
asiatica, *Brogn.*
macrophylla, *Wall.*

CHAILLETIACEAE. Chailletiads.

Moacurra, *Roxb.*

Mr. Parish writes as these sheets are going to press : "I had the good fortune at last to discover *Myouk-kyau* in full flower, cut down the tree, and procured several excellent specimens. It appears to me to be allied to *Moacurra*, but I mean to send it to Dr. Thompson for determination. The flowers are minute, greenish, arranged thickly in axillary spikes, six inches long."

BURSERACEAE.

Bursera, *Jacq.*
serrata, Mc.
Canarium, *Linn.*
geniculatum, "
Garuga, *Roxb.*
hsen-youk, ဆင်ရုတ်။ ချင်ရုတ်။ zaing-youk. B.

EUPHORBIACEAE. SPURGEWORTS.

Cicca, *Lin.*
disticha, " Otaheite Gooseberry. ex.
သဘ်ာဖီဖြူ။ them-bau-hzee-phyu.
Phyllanthus, *Roxb*
embelia, *McClell.*
ဖီးဖြူ။ hzee-phyu.
Xylophylla, *Lin.*
elongata, *Ladd.* ex.
Agyneia, *Lin.*
coccinea, *Buch.*
ထမင်းဆုပ်ကြီး။ hta-hmen-hsoke-gyee.
Bridelia, *Willd.*
amoena, *Wall.*
Croton, *Lin.*
polyandra, *Roxb.* ex.
သဒီဝါ။ tha-dee-wa.
Croton,
Tiglium, *Lin.* Croton oil Plant. ex.
ခန္နခို။ khan-na-kho.
malvæfolium.
Pavana, *Hamil.* Ava Croton.
thet-yen-nee, သက်ရင်းနီ။
" " ka-dau, သက်ရင်းကတော်။ Rangoon Croton.
Rottlera, *Rox.*
tinctoria, *Willd.*
တောသီတင်။ tan-thie-den.
kinoon-la, *Wall.*
memasho, "

Codiæum, *Rumph.*
Chrysostieton. " Variegated Croton. ex.
Ricinus, *Lin.*
communis, " Castor-oil Plant. ex.
ကျက်ဆူး kyet-hsoo
diococa, *McClell.*
Mappa, *Lin.*
Janipha, *Kth.*
Manihot, " Tapioca Plant, ex.
ပုလောပိနံဖြောက် pu-lau-pe-nang-myouk.
Jatropha, *Lin.*
Curcas, " Physic Nut. ex.
သဘော်ကြက်ဆူး them-bau-kyet-hsoo.
multifida, *Lin.* Coral Plant. ex.
pandurædfolia, ex.
Acalypha, *Lin.*
indica, "
Tragia, *Plum.*
ဗက်ယား bet-ya.
Stylodiscus, *Bennett.*
trifoliatus, "
Dalechampia, *Plum.*
pomifera, *Mc.*
ဒေါက်ရမ်း douk-ya-mah
Hæmatospermum, *Wall.* nerifolium P.
Excoecaria, *Lin.*
Agallocha? " Blind Aloes.
တယော်။ကယော် ta-yau, ka-yau.
Euphorbia, *Lin.*
Bojeri, *Hook.* Bojer's Euphorbia. ex.
Ligularia, *Roxb.*
ရှားစောင်း sha-zoung.
sessiliflora. *Roxb.*
hirta, *Lin.* Spurge.
jacquiniflora,
sha-zoung-gyee, ရှားစောင်းကြီး
" " pya-that, " " ပျဿတ်
" " khyen, " " ချင်း
" " kha, " " ခါး
" " nway, " " နွေးလိ
" " myen-na, " " မြင်နှာ
" " let-nyo, " " လက်ညို

oke-hnai, အုတ်နှဲ
kyouk-oke-hnai, ကျောက်အုတ်နှဲ
Poinsettia, *Grah.*
pulcherrima, " ex.
Pedilanthus, *Neck.*
tithymaloides, *Poit.* Jew Bush ex.
Govania, *Wall.*
nivea, "
Euphorbiaceæ, "
len-gung, လင်ကောင်း ?

CELASTRACEAE. SPINDLE TREES.

Lophopetalum, *Wight.*
fimbriatum, "
Elæodendron.
integrifolia, *McClell.*
ဆောက်း hsouk.
orientale,
လက်ပက်ပင်း le-pet-ben.

HIPPOCRATEACEAE. HIPPOCRATEADS.

Salacia, *Lin.*
prinoides, *D. C.*
verrucosa, *Wight.*
multiflora, "

MALPIGHIACEAE. MALPIGHIADS.

Malpighia, *Lin.*
heteranthera. *Wight.* ex.
Hiptage, *Gartn.*
madablota, "
Hiræa, *Jacq.*
indica, *Roxb.*
hirsuta, *Wall.*
Ancistrocladus, "
extensus,
(three other species, Griff.)

ERYTHROXYLACEAE. ERYTHROXYLS.

Erythroxylon,
laurifolium, P.
Sethia, *Kunth.*
indica.

PORTULACACEAE. PURSLANES.

Portulaca, *Lin.* Purslane.
oleracea, " Common Purslane.

မြေဖျစ်။ mya-byeet

Portulacaria, *Jacq.*
afra, " ex.

SILENACEAE. CLOVEWORTS.

Dianthus, *Lin.* Pink.
(several species.) ex.

ILLECEBRACEAE. KNOTWORTS.

Mollugo, *Lin.*
Spergula, " Carpet Weed.
ဂျင်ဂါး။ gyen-ga.
Drymaria, *Willd.* (Species ?)
Polycarpæa, *Lam.*
corymbosa, "

OCHNACEAE. OCHNADS.

Ochna, *Lin.*
squarrosa, "
ဆင်ဝယ်။ hsen-way.

SIMARUBACEAE. QUASSIADS.

Samadera, *Gartn.*
lucida.
ကသစ်။ ka-thay.

RUTACEAE. RUEWORTS.

Cyminosma, *Gartn.*
pedunculata, *D. C.*

ZYGOPHYLLACEAE. BEANCAPERS.

Tribulus, *Lin.* Caltrops.
lanuginosus, "

XANTHOXYLACEAE. PRICKLY ASHWORTS.

Xanthoxylon, *Lin.*
budrunga, *Mc Clell.*
ကသစ်ဆူး။ ka-theet-hsoo.

PODOSTEMACEAE. PODOSTEMADS.

Podostemon, P.

GERANIACEAE. CRANESBILLS.

Pelargonium, *L. Herit.* Geranium, (Species?) ex.

BALSAMINACEAE. BALSAMS.

Impatiens, *Lin.* Jewel Weed.
Touch-me-not.
Balsamina, " ex.
ပန်းရွှစ်။ ဒန်ဒသလက်။ pan-sheet. dan-da-let.

fomentosia,	*Heyne.*		
reticulata ?			
Hydrocera,	*Bl.*		
triflora,	*Wight.*		

OXALIDACEAE. WOODSORRELWORTS.

Averrhoa,	*Lin.*		
Carambola,	"		ex.
ဇောင်ယား။ zoung-ya.			
Bilimbi,	*Lin.*		ex.
Biophytum,	*D. C.*		
sensitivum,	"		
Oxalis,	*Lin.*	Wood-sorrel.	
corniculata,	"		

ROSACEAE. ROSEWORTS.

Rosa,	*Lin.*	Rose.	
		English Rose.	ex.
		China Rose.	"
		Bengal Rose,	"
နှင်းဆီ။ hnen-hsee.			
rubiginosa,	*Lin.*	Sweet Briar.	ex.
recurva ?	*Roxb.*		"
Rubus,	*Lin.*	Briar.	
Gowreephul,	*Roxb.*		
moluccanus,	*Lin.*		
flavus,	*Ham.*		

DRUPACEAE. ALMONDWORTS.

Pygium.			
acuminata	*McClell.*		

POMEAE. APPLEWORTS.

Eriobotrya,	*Lindle.*		
japonica,	,,	Loquat.	ex,
Pyrus,	*Lin.*	Pear.	(Species ?)
Photinia.			
serratifolia,	*McClell.*		
ဒေါက်ရတ်။ douk-yat.			

AMYGDALEAE. ALMONDWORTS.

Amygdalus,	*Lin.*		
Persica,	"	Peach.	ex.
Cerasus,	*Juss.*	Cherry.	(Species ?)

LEGUMINOSAE. LEGUMINOUS PLANTS.

Sophora,	*Lin.*		
tomentosa,	"		
vobusta,	*McClell.*		

သစ်ဝါကြီး၊ theet-wa-gyee.
Crotalaria, " Bengal Flax.
juncea, "
ပန်း၊ ပိုက်ဆံ၊ pan. paik-hsan.
anthylloides, *Lam.*
retusa, *Lin.*
verrucosa, "
prostrata, *Roxb.*
bracteata, "
quinquefolia, *Lin.*
crassifolia, *Buch.*
Priotropis, *Wight.*
cytisoides, "
Melilotus, *Tournef.* Melilot. (Species?)
ပဲ၊ pai.
Cyamopis, *D. C.*
psoraloides, " Native Bean. ex.
ပဲပဓွန်၊ pai-pa-soon,
Psoralea, *Lin.*
corylifolia, " ex.
Indigofera, " Indigo Plant.
tinctoria, " Common Indigo. ex.
မဲနယ်၊ ရှန်းမဲ၊ mai-nay. shan-mai.
linifolia, *Retz.*
enneaphylla, *Lin.*
viscosa, *Lam.*
uncinata, *Roxb.*
trita, *Lin.*
hirsuta, "
Brunoniana, *Wall.*
Pueraria, *D. C.*
tuberosa, "
Clitoria, *Lin.*
ternatea. " ex.
ပဲနောင်းနီ၊ အောင်းမဲဖြူ၊ oung-mai-phyoo.
macrophylla, *Wall.*
Glycine, *Lin.*
labialis, "
Tephrosia, *Pers.* Hoary Pea.
coccinea, *Wall.*
purpurea, *D. C.*
Sesbania, *Pers.*
œgyptiaca, " ex.
ရေသူကြီး၊ yæ-thoo-gyee.
aculeata, *Pers.*

Agati, *Rheed.*
grandiflorum, *Desv.* ex.
ပေါက်ပန်း pouk-ban.
Æschynomene, *Lin.*
Paludosa, *McClell.*
ပေါက်း pouk.
ညာ nya.
Uraria, *Desv.*
crinita, "
lagopodioides, *D. C.*
alopecuroides, *Wight.*
styracifolia, "
cordifolia, *Wall.*
campanulata, "
retrofracta, "
picta, *McClell.*
Desmodium, *D. C.* Tick Trefoil.
umbellatum, "
cephalotes, *Wall.*
triquetrum, *D. C.*
မုတ်ဆိုးလှိမ်း moke-hso-hlan-ma.
gangeticum, *D C.*
diffusum. "
elongatum, *Wall.*
gyrans, D. C.
polycarpum, "
triflorum, " Indian Clover.
heterophyllum, "
reniforme, "
auricomum, *Grah.*
biarticulatum, *D C.*
reptans,
nyan, ညှိန်း
Hedysarum.
tuberosum, *McClell.*
Lespedeza, *Mich.*
Dicerma, *D C.*
pulchellum, "
Alysicarpus, *Neck.*
monilifer, *D C.*
vaginalis, "
styracifolius, "
nummularifolius. "
Wallichii, *Wight,*
Cicer, *Lin.* Chick Pea.
arietinum. *Grah.* ex

ကုလားပဲ။ ku-la-pai.

Pisum, *Lin.*
sativum, " Pea. ex.
Abrus, "
precatorius, " ex.

ရွေးငယ်။ ချင်ရွေး။ rwæ-gnay, khyen-rwæ.

Rhynchosia, *Lour.*
dentiflora, *D. C.*
Flemingia, *Roxb.*
stricta, "
congesta, "
semialata, "
lineata, "
Chappar, *Buch.*
Phaseolus, *Lin.*
fuscus, *Wall.*
trilobus, *Ait.*
mungo, *Lin.* Gram.
Lathyrus, " Vetch. (Species?)
Soja, *Monch.*
hispida, "
Dolichos, *Lin.*
pilosus, *Roxb.* Wild Dolichos.

တောပဲ။ tau-bai.

Lablab, *Adans.*
vulgare, *Savi.* Indian Kidney Bean. ex.

ပဲ။ pai.

Psophocarpus, *Nech.*
tetragonolobus, *D C* Chevaux de Frize Bean. ex.

ပဲမြင့်။ ပဲဆောင်းဝါး။ pai-myeet, pai-hsoung-wa.

Canavalia, *D C.*
gladiata, " Sword Bean. ex.

ပဲနောင်းနီ။ pai-noung-nee.

bracteata, *Wall.*
virosa, *Wight.*
Mucuna, *Adans.*
pruritus, *Hook.* Cow Itch.

ခွေးလေး။ khwæ-læ.

Cajanus, *D C.*
indicus, *Spreng.* Doll. ex.

ပဲရင်းချုံ။ pai-yen-khyung.

Erythrina, *Lin.*
Indica, *Lam.* Mootchee Wood.

ကသစ်။ ka-theet.

toung-ka-theet, တောင်ကသစ်။

pen-lay-ka-theet, ပင်လယ်ကသစ်။

Butea, *Kon.*

frondosa, *Roxb.* Pulas Kino Tree.

ပေါက်။ pouk.

superba, " Creeping Butea.

ပေါက်နွယ်။ pouk-nway.

sericophylla, *Wall.*

Pongamia, *Lam.*

glabra, *Vent.* Karung.

သဝဲ။ tha-wen.

uliginosa, *D. C.*

heterocarpa, *Wall.*

atropurpurea, " Dark-purple Pongamia.

ကွဲ့တညည်း။ kywai-ta-nyen.

arborea, *McClell.*

tetrapetala, "

Millettia, *Wight.*

elliptica, "

Dalbergia, *Lin.*

paniculata, *Roxb*

spinosa, "

reniformis,

ဒေါက်လောင်။ douk-loung.

glaca, *Wall.*

ဒေါက်တလောက်။ douk-ta-louk.

myouk-shau, မြောက်ရှော်။

myouk-khyau, မြောက်ချော။

myouk-ngo, မြောက်ငို။

yen-daik, ရင်းတိုက်၊

theet-hsouk-yo, သစ်ဆောက်ရိုး

Pterocarpus, *Lin.*

Wallichii, *Wight.* Gumkino Tree.

Indica, *Roxb.*

ပတောက်။ pa-douk.

toung-kha-yai, တောင်ခရဲ။

Arachis, *Lin.* Earth nut, Pea Nut-

hypogea, " ex.

မြေပဲ။ myæ-bai.

Guilandina, *Juss.*

Bonduc, *Lin.*

ကလိမ်၊ ka-leing.

Cæsalpinia,	*Lin.*		
Sappan,	"	Sappan Wood.	
တိုနိုးညက်။ teing-nyet.			
mimusoides,	*Lam.*		
sepiaria,	*Roxb.*	Mysore Thorn.	
ဆူးကျွန်ဝိုး။ hsoo-kyan-bo.			
paniculata,			
ဆူးကောက်။ hsoo-kouk.			
Poinciana,	*Lin.*		
pulcherrima,	"	Barbadoes or Flower Fence, Peacock's pride, Spanish Carnation.	ex.
ဒေါင်းစုတ်။ doung-souk,			
regia,	*Bojer.*	Royal Poinciana.	ex.
Mezoneurum,	*Desf.*		
hymenocarpum,	*Wight.*		
Hæmatoxylon,	*Lin.*		
campechianum,	"	Logwood.	ex.
Parkinsonia,	"	Jerusalem Thorn.	
aculeata,	"		ex.
Jonesia,	*Roxb.*		
Asoca,	"		
အင်သောကဖိုး a-thau-ka-pho.			
Tamarindus,	*Lin.*		
indica,	"	Tamarind Tree.	ex.
မဂ်ကျည်း။ mag-gyee.			
Cathartocarpus,	*Pers.*	(Cassia. Linn.)	
Fistula,	"	Sweet-fruited Cassia.	
ဂုကြီး။ gnu-gyee.			
nodosus,	*Voigt.*	Knotted Cassia.	
ဂုသိန်း။ gnu-theing,			
Pterolobium,	*Brown.*		
lacerans,	"		
Cassia,	*Lin.*	Senna.	
Sophora,	"		
alata,	"	Winged Cassia.	
ခဲကဇီကြီး။ mai-za-lee-gyee.			
obtusa,	*Roxb.*		
florida,	*Vahl.*	Flowery Cassia.	ex.
ခဲကဇီ။ mai-za-lee.			
glauca,	*Lam.*		ex.
suffruticosa,	*Kon.*		
occidentalis,	*Lin.*	Western Cassia.	
ကလော။ ka-lau.			

Tora, *Lin.* Fæted Cassia.
ဒန့်ကွဲ။ dan-kywai.
Wallichiana, *D. C.*
angustissima, *Lin*
palmata. *Wall.*
sumatrana.
tau-mung-hsee, တောမုန့်ဆီ။
pyæ-ban-nyo, ပြေပန်းညို။
Cassia.
pee-tha-kha-hseu-pree-o, (Sgau.)
" " " bau, "
Cynometra, *Lin.*
cauliflora, " ex.
acacisides, *Griff.*
Hymenæa. *Lin.*
Courbaril, " American Gum-anime Tree. ex.
Bauhinia, "
malabarica, *Roxb.*
acuminata, *Lin.* White Bauhinia. ex.
မဟာလှေကားဖြူ။ ma-ha-hlæ-ga-phyoo.
tomentosa, *Lin.* Yellow Bauhinia. ex.
မဟာလှေကားဝါ။ ma-ha-hlæ-ga-wa.
variegata, *Lin.* Purple Bauhinia. ex.
purpurea, "
မဟာလှေကားနီ။ ma-ha-hlæ-ga-nee.
scandens, *Lin.* Esculapian-rod Bauhinia.
မျောက်လှေကား။ myouk-hlæ-ga.
diphylla, *Buch.*
ပလံ။ pa-lan.
brachycarpa, *Wall.*
polycarpa, "
parviflora, *McClell.*
bwai-jin, တွဲဇင်။
nway-pa-lan, နွယ်ပလံ။ Creeping Bauhinia.
sheen-byat, ရှည်ပျက်။
myouk-kha-pat, မျောက်ခါးပတ်။
mai-kai-so-ka-pæ. (Sgau.)
Entada, *Adans.*
Pursœtha, *D. C.*
ကုမ်ညင်း။ kung-nyen.
Mimosa, *Lin.* Sensitive Plant.
pudica, " ex.
ထိကာရုင်း။ hte-ka-yung.

Inga,		Plum.	
bigemina,	*Willd.*		
တညင်း၊ ta-nyen,			
bung-mai-za,	ပုန်မဲဇာ၊		B.
xylocarpa,	*D C.*	Iron-wood Tree.	
ပျင်းကတိုး၊ pyen-ka-do.			

In the Friend of India of Sept. 15th 1859, the Editor writes: The Executive Engineer of Shwaygyen and Sittang writes to the Government of Madras on the virtues of the timber said to be indigenous to Burmah, and known by the native name of *pyen-ga-do*. From its being impervious to white ants and resisting the action of the weather, it is admirably adapted for Railway sleepers. There are bridges in Burmah of 60 and 70 years' standing over tidal nullahs, but there is no mark of decay on the pyen-ga-do of which the piers are constructed. The tree abounds in Martaban. It grows to the height of 30 and 40 feet without a branch, and varies in girth up to 8 and 9 feet. Its average cost delivered in any of the Sittang stations is from 6 to 8 annas per 6 inch cubit foot. Though heavier than water, it can be easily floated when mixed with bamboos. Is this not the same wood found so largely in Western Australia?

It is the last species mentioned above, *I. Xylocarpa*, or Iron-wood tree, (see page 529.)

Caillea,	*Guillom.*		
cinerea,	"		
Adenanthera,	*Lin.*		
pavonina,	"		
ရွေးကြီး၊ rwæ-gyee.			
Acacia,	*Neck.*	Acacia.	
Catechu,	*Willd.*		
ရှား၊ sha.			
stipulata,	*D C.*		
odoratissima,	*Will.*		
elata,	*Grah.*		
Sirissa,	*Buch.*		
စစ်။ seet.			
pennata,	*Willd.*		
rugata,	*Buch*		
ken-bwon,	ကင်ပွန်း၊		
kuk-ko.	ကုတ်ကို၊		
popeeah,	*Wall.*		
nway-khyo,	နွယ်ချို၊	Spurious Liquorice.	
Vachellia,	*Wight.*		
Farnesiana,	"	Gum Arabic Tree.	ex.
နန်းလုမ်းမှိုင်း၊ နန်းလုမ်းကြိုင်။		nan-lung-kyeing.	

Legum'nosæ.

pai-lwon, ပဲလွန်း။
" kyet-oo, " ကျက်ဥ။
" than-ta, " သံတာ။
" bya, " ပြား။
" nai-tha, " နွဲသာ။
" nouk, " နောက်။
" be-sat, " ဘီးစပ်။
myouk-pai, မျောက်ပဲ။
tau-kha-yai, တောခရဲ။
kyoung-gyet, ကျောင်ကျက်။
plau-mu, (Sgau.)
tha-na, "
tau-hee, "

CONNARACEAE. CONNARADS.

Connarus, *Lin.*
monocarpus, "
doke ka-det? ဒုပ်ကတက်။
nitida, *McClell.*
speciosa, "
khwæ-touk.

Rourea, *Aubl.*
Sookurthoontee. *Voigt.*
တလီတိ။ ta-lee-te.

CRASSULACEA. HOUSE-LEEKS.

Sempervivum, House-leek.
tectorum, ex.
ရွက်ကျပင်ပေါက်။ ywet-kya-pen-pouk.
Kalanchoe, *Adans.*
teretifolia, *Wall.*
Bryophyllum, *Salisb.*
calcycinum, "
ရွက်ကျပင်ပေါက်။ ywet-kya-pen-pouk.

AMYRIDACEAE.

Amyris.
heptaphylla, *McClell.*

ANACARDIACEAE. TEREBINTHS.

Anacardium, *Roxb.*
occidentale, *Lin.* Cashew Nut.
သီဟိုလ်သရက်။ thee-ho-tha-yet. ex.
thubbambu, *Wall.*

Semecarpus. *Lin.*
humilis, *Wall.*
anacardium, *McClell.*
ချေး khyæ.
Holigarna, *Roxb.*
longifolia, "
ရှစ်ချေး sheet-khyæ.
Mangifera. *Lin.* Mango Tree.
indica, "
sylvatica, *Roxb.*
attenuata, *McClell.*
တောစာသရက် tau-sa-tha-yet.
သရက် tha-yet.
fœtida, *Lour.* Horse Mango.
လမွှတ်ဆင်နှင်းသရက် la-mwot.
Bouca, *Meisner.*
oppositifolia " Opposite Leaved Mango.
မရုန်း ma-yan.
Buchanania, *Roxb.*
latifolia.
လင်းလွန်း len-lwon.
angustifolia, *Mc.*
Melanorrhœa, *Wall.* Varnish Tree.
usitatissima, "
သစ်ခေး theet-sæ.
glabra, *Wall.*
visitata, "
သစ်သတ်သစ်ခေးရိုင်း theet-sæ-yaing.
Rhus, *Lin.* Sumach.
paniculata, *Wall.*
Odina, *Roxb.*
Wodier, "
ဘိုဝဲ hnan-bai.
Syndesmis, *Wall.* Red-wood.
tavoyana, "
ချေး khyæ.
Swintonia, *Griff.* (Species ?
Spondius, *Lin.*
mangifera, *Pers.* Hogplum.
ကျွဲကျေး kywæ.
acuminata, *McClell.*

QUERCACEAE. MASTWORTS.

Castanea, *Tournef.* Chestnut.

martabanica, *Wall.*
သစ်ချ။ theet-khya.
tribuloides.
ဝက်သစ်ချ။ wet-theet-khya.

Quercus, *Lin* Oak.
fenestrata, *Roxb.*
turbinata, "
velutina, *Wall.*
သဗိတ်။ tha-beik.
amberstianus, *Wall.*
Tirbbœ, "
thæ-ghau, (Sgau.)
" wa, "
" tee, "

Quercaceæ,
thæ-læ-nau, (Sgau.)
" " ka-seu, "

SCEPACEAE. SCEPADS.

Scepa, *Lindl.*
villosa, *Lin.*

STILAGINACEAE. ANTIDESMADS.

Antidesma,
paniculata, *McClell.*
ကျက်သဟင်း။ kyet-tha-hen, ဗျည်စင်။

URTICACEAE. NETTLEWORTS.

Urtica, *Lin.* Nettle.
heterophylla, *Roxb.*
ဓက်ယား။ bet-ya,
Nivea, *Lin.* Nettle-hemp. ex.
ဂွမ်း။ gwon.

Bohmeria, *Jacq.*
interrupta, *Willd.* Nettle.
ကျက်ဓက်ယား။ kyet-bet-ya.

Cannabis, *Lin.* Hemp.
sativa, " Bang Plant. ex.
ဘင်း။ ben.

Morus, " Mulberry.
atropurpurea, *Roxb.* ex.
indica, " " "
ပိုးစာ။ po-sa.

Broussonetia, *Vent.*
papyrifera, Chinese-paper Tree.

မလှိုင်း ma-hlaing.

Ficus, *Lin.* Fig.

Carica, " Common Fig. ex.

တိသိး tie-thie.

elastica, *Roxb.* India-rubber Tree. ex.

religiosa, " *Lin.* Aspen-leaved Peepul.

ညောင်ဗောဓိ nyoung-bau-de. ညောင်ဗုဒ္ဓဟေး

cordifolia, Heart-leaved Fig.

ညောင်ကျွတ် nyoung-gyat.

Benjaminoides, *F. M.* Tenasserim Banyan.

ညောင်ချေထောက်။ ညောင်အုံ nyoung-oung.

Dæmonam, *Kon.*

ရေခအုံ yæ-kha-oung,

Roxburghii, *Wall.*

Cunia, *Buch.*

Ficus,

macrophylla, *Mc.*

glomerata, "

ရေသဖန်း yæ-tha-phan.

lanceolaria, *Mc.*

indica, " Banyan ex.

ပညောင်၊ပြည်ညောင် pa-nyoung.

yuæ-tie-thie, ရွေးတိသိး

nyoung-tha-byæ, ညောင်သပြေ

nyoung-peing-nai, ညောင်ပိန်နဲ

bet-ka-lat, ဘက်ကလပ်

kha-ung-sung-koo, ခအုံစုံကူး

dauk-let, ဒေါက်လက်

sa-kha-ung, စာခအုံ

thubboo, *Wall.*

thuppan, "

we-tha-kau-tho, (Sgau.)

" " " hsa, "

" " koo-pan. "

" " " " tho, "

" " " " hsa, "

" ta-eu-na-tho, "

" " " " hsa, "

" htee, "

tha-dwee-tho, "

khai-hsa, "

kle-thoo-mu, "

Artocarpus, *Lin.*

integrifolius, *Lin.* Jack Tree. ex.
ပိန်းနဲ။ peing-nai,
Lacoocha, *Roxb.*
မြောက်လုတ်။ myouk-loke. ex.
echinatus, *Roxb.*
တောင်ပိန်နွဲ။ toung-peing nai.
chaplasha, *McClell.*
hirsutus, *Roxb.*
incisus, *Lin.* Bread Nut. ex.
communis, *Forst.* Bread fruit.
myouk-loke-gyee, မြောက်လုတ်ကြီး၊ မြောက်လောင်။
myouk-loke-ngay, မြောက်လုတ်ငယ်။
Phytocrene, *Wall.* Water Vine.
gigantea, "
Urticaceæ.
bet-ya, ဘက်ယား။
nway-bet-ya, နွယ်ဘက်ယား။
Urticea procera? *Griff.*

ULMACEÆ.

Ulmis.
integrifolius, Mc.
alternifolius, "
သလဲ။ tha-lai.

JUGLANDACEÆ. JUGLANDS.

Juglans, *Lin.* Walnut.
arguta, *Wall.*
သစ်ကြ။ theet-kya.
tricoca, *McClell.* *ta-soung-let-was.*
Engelhardtia, *Leschen.*
Roxburghiana, *Lindl.*

CASUARINACEÆ. BEEFWOOD.

Casuarina, *Lin.* Beef Wood Tree.
muricata, *Roxb.*
ထင်းရူး။ hten-roo.
lateriflora, ex.
pentandra, McClell.
သပြေဝက်ကျ။ tha-byæ-wet-kya.

PIPERACEAE. PEPPERWORTS.

Piper.
nigrum, *Lin.* Black Pepper.
ငရုတ်ကောင်း။ nga-yoke-koung. ex.

longum, *Lin.* Long Pepper.
ဖိတ်ခွင်း peik-khyen.
Betel, *Lin.* Betel Leaf.
ကွမ်းရွက် kwon-rwet.
ribesioides, *Wall.* Wild Betel Leaf.
တောကွမ်း tau-kwon.

SALICACEAE. WILLOWWORTS.

Salix, *Lin.* Willow.
babylonica, " Weeping Willow. ex.
mo-ma-kha, မိုးမခ

ALTINGIACEAE. LIQUIDAMBARS.

Liquidambar, *Lin.*
Altingia, Liquid Storax Tree.
နန်းတရုတ် nan-ta-yoke.

SANTALACEAE. SANDALWORTS.

Santalum, *Lin.* Sandal Wood Tree.
album, "
စန္ဒကူး san-da-koo.
ka-ra-mai, ကရဲ
Osyris, *Lin.*
peltata, "
Henslovia, *Wall.*
Phaoun, "

ELÆAGNACEAE. OLEASTERS.

Elæagnus, *Lin.* Wild Olive.
conferta, *Roxb.* Oleaster.
မငှ men-gu.

THYMELACEAE. DAPHNADS.

Daphne, *Lin.*
ဆေးလေ hsæ-læ.
Cansjera, (Species ?

AQUILARIACEAE. AQUILARIADS.

Aquilaria, *Lin.* Lign-aloes.
a-kyau, အကျော် Aloes Wood.

PROTEACEAE. PROTEADS.

Helicia, *Lour.*
excelsa, *Brown.*
glabrata, "

LAURACEAE. LAURELS.

Cinnamomum, *Burm.*

iners, *Reinw.*
သစ်ကျမ်းပိုး theet-kyam-bo.
len-kyau, သင်္ကြော်။
Ocotea, *Aubl.*
mollis, *Wall.*
Persea, *Gartn.*
grandis, *Nees.*
Laurus, *Lin.*
nitida, *Mc.*
pan-na-tha, ပန်းနသာ။
ka-rwae ကရွေး။ Martaban Camphor Wood.
kyai-zai, ကျဲစဲ။
kyai-zai-khyae, ကျဲစဲကျွဲ။
hman-then, မှန်သင်း Sassafras.
ung-tung, အုန်တုန်။
thuygoo, *Wall.*
kheemna, "
ka-thee-wæ-ka-thee-nau. (Sgau.)
sa-bau-ke. "
Tetranthera, *Jacq.*
Roxburghii, *Nees.*

CASSYTHACEAE. DODDER-LAURELS.

Cassyta, *Lin.*
filiformis, "

ARISTOLOCHIEÆ. BIRTHWORTS.

Aristolochia, *Lin.*
acuminata, *Lam.*

AMARANTACEÆ. AMARANTS.

Digera, *Forsk.*
muricata, *Mart.*
Deeringia, *Brown.*
indica, *Spreng.*
Amarantus, *Lin.*
tristis, "
oleraceus, " Nepaul Spinage. " ex.
polygamus atropurpure *McClell.*
ဟင်းကန်းယိ။ hen-ka-nway.
spinosus, *Lin.* Spinous Amarantus.
ဟင်းကန်းယိ။ hen-ka-nway.
Ærua, *Forsk.*
Monsoniæ, *Mart.*
scandens, "
brachiata, "

lanata,			ex.
javanica,	*Juss.*		"
Celosia,	*Lin.*	Cockscomb.	
argentea,	"		
cristata,	"		

ကျက်မောက်။ kyet-mouk.

kyet-yet, ကျက်ရက်။ Prince's Feather.

Gomphrena,	*Lin.*	Globe-amarant.	
globosa,	"		ex.

မည်းဝန်း။ ma-hnyo-ban.

Alternanthera,	*Forsk.*		
sessilis,	*Brown.*		
Achyranthes,	*Lin.*		
aspera,	"		
Desmochaeta,	*D. C.*		
velutina,	*Wall.*		
Centrostachys,	"		
aquatica,	"		

CHENOPODIACEÆ. Goosefootworts.

Basella.			
alba,	*Lin.*	Malabar Nightshade.	ex.

ကျင်ဆိုင်။ gyen-baing.

TETRAGONIACEÆ. Aizoons.

Sesuvium,	*Lin.*	
repens,	*Rottl.*	

PHYTOLACCACEÆ. Virginian Pokeworts.

Gisekia,	*Lin.*	
pharnaceoides,	"	

POLYGONACEÆ. Buckwheats.

Polygonum,	*Lin.*		
tomentosum,	*Willd.*		
barbatum,	*Lin.*		
glabrum,	*Willd.*		
perfoliatum,	*Lin?*		P.
Ampelygonum,	*Lindl.*		
chinense,	"		
Rumex,	*Lin.*	Dock.	
vesicarius, ?	"	Country Sorrel.	

NYCTAGINACEÆ. Nyctagos.

Mirabilis,	*Lin.*	Marvel of Peru.	
Jalapa,	"	Four O'clock.	ex.
Kermesina,	Crimsoned flowered variety.		
" alba,	"	" "	
Alba,	White	" "	

Flava,	Yellow flowered variety.	
" alba,	Yellow-white " "	
မည်စည်။ မည်စူ။ မြေဇူ။	myae-zu.	
Boerhaavia,	*Lin.*	
erecta,	"	
repanda,	*Willd.*	ex.

MENISPERMACEÆ. MOONSEEDWORTS.

Anamirta,	*Colebr.*	
Cocculus,	*Wight.*	
Cocculus,	*Bauh.*	
acuminatus,	*D. C.*	
villosus,	"	

ERICACEÆ. HEATHWORTS.

Rhododendron,	*Linn.*	
Maulmainense,	Maulmain Rhododendron.	
formosum.		
arboreum,	Toungoo Rhododendron.	

VACCINIACEÆ. BILBERRYWORTS.

Vaccinium,	*Linn.*	
two species,		B.
Thibaudia,	*Pav.*	
loranthiflora,	*Wall.*	

PRIMULACEÆ. PRIMROSE TRIBE.

Lysimachia,	*Monch.*	
peduncularis,	*Wall.*	P.

MYRSINACEÆ. ARDESIADS.

Ægiceras,	*Gart.*	
fragrans,	*Kon.*	
ဘူတရက်။ boo-ta-yat.		
Ardesia,	*Swz.*	
humilis,	*Vahl.*	
amherstiana,	*Wall.*	
ကျက်မအုပ်။ kyet-ma-oke.		
læ-kho-mau-thoo,	(Sgau.)	
" " " ghau,	"	
" " " wa,	"	
" " " pha-do,	"	
Embelia,	*Juss.*	
Ribes,	*Burm.*	
villosa,	*Wall.*	
glandulifera,	*Wight.*	
Maesa,	*Forsk.*	
ramentacea,	*Wall.*	
lanceolata,	*Voight.*	

SAPOTACEÆ. SAPPOTADS.

Achras, *Lin.*
Sapota, " Sapodilla Plum, Bully-tree. ex.
သွတ်တဘတ်။ thwoot-ta-bat, ဒွတ်လဘတ်။

Chrysophyllum, *Lin.*
Cainito, " Star-apple. ex.
Mimusops, "
Elengi, " ex.
ခရာ။ ခရဂုဏ်။ kha-ya, kha-ya-gung, ချားရား။ khya-ya.

Kauki, *Lin.*
thubbæ, *Wall.*
Dodonæa, *Lin.*
Burmanniana.
Bassia, *Kon.*
longifolia, *Lin.* Illiepie Oil Tree.
ကမ်စော်။ kan-zau.

Sideroxylod, *Lin.*
regium, *Wall.*
Sapotaceæ.
palæpean, "

DIOSPYRACÆ. EBENADS.

Diospyros, *Lin.*
kaki, " Chinese Date. ex.
တယ်။ တည်။ tay, tee.

mollis, *Griff.* Shan Black Dye.
heterophylla, *Wall.*
glutinosa. P.

yen-daik, ရင်းတိုက်။
tau-boke, တောဗုတ်။
pen-lay-boke, ပင်လယ်ဗုတ်။

ryamucha, *Wall.*
melanoxylon, Mc.
အောက်ချင်ရား ouk-chin-ya.

Mabba, *Fors.*
buxifolia, *Pers.*
မဲပျောင်။ mai-byoung.

STYRACEÆ. STORAXWORTS.

Symplocos, *Lin.*
kunneen, *Wall.*
kain-tha-phogee, ကိုင်သာဖိုကြီး။
keun-la ကျွန်လာ။

Styrax, *Lin.*
Benzoin, ? *Dryand.*

ILICIACEÆ. HOLLYWORTS.

Ilex, *Lin.* (species?)

NOLANACEÆ. NOLANADS.

Dichondra.
repens, *Forst.*

CUSCUTACEÆ. DODDERS.

Cuscuta, *Lin.* Dodder.
sulcata, *Roxb.*

CONVOLVULACEÆ. BINDWEEDS.

Convolvolus, *Lin.*
dissectus, " Noyau Plant. ex.
parviflorus, *Vahl.*
Rivea, *Choisy.*
tilæfolia, "
obtecta, "
Argyreia, *Lour.* Silver Weed.
laurifolia, *Voight.*
Wallichii, *Choisy.*
capitata, "
နွယ်နီ။ nway-nee.
aggregata, *Choisy.*
pallida, "
tomentosa, "
barbigera, "
rubicunda, "
Quamoclit, *Tournef.*
pennatum, *Voight.* China Creeper, Jasmine Rouge or Dwarf Bean. ex.
မြတ်လေးနီ။ myat-laæ-nee.
Battatus, *Rumph.*
edulis, *Choisy.* Sweet Potatoe. ex.
ကစွန်း။ ka-zwon. သဘော်မြောက်။
paniculata, *Choisy.*
Pharbitis, "
Nil ? "
Calonyction, "
speciosum, " Moon Flower. ex.
Roxburghii, *G. Don.*
နွယ်ကစွန်းအဖြူ။ nway-ka-zwon-a-phyoo.
Ipomea, *Lin.*
Pes caprœ, *Sweet.* Goat-footed Ipomæ.
ပင်လယ်ကစွန်း။ pen-lay-ka-zwon.

gangetica,	*Voigt.*	
tridentata,	*Roth.*	
filiformis,	*Voigt.*	
Turpethum,	*Brown.*	
straminia,	*Wall.*	
pileata,	*Roxb.*	Bonnet Ipomæ.
parbata,	*Choisy.*	
hispida,	*Voight.*	
striata,	*Pers.*	
obscura,	*Ker.*	
dentata,	*Willd.*	
heptaphylla,	*Voigt.*	
Pes tigridis,	*Lin.*	Tiger-footed Ipomæ.
petaloidea,	*Choisy.*	

oo-men, ဥမင်း

Hewitia,	*Wight.*	
bicolor,	"	
Skinneria,	*Choisy.*	
cæspitosa,	"	
Porana,	*Burm.*	
paniculata,	*Roxb.*	
racemosa.		
Breweria,	*Brown.*	
Roxburghii,	*Choisy.*	
elegans,	"	
Evolvulus,	*Lin.*	
alsinoides,	"	
Lepistemon.		
flavesens,		
Blinkworthia,	*Choisy.*	
lycioides.		
Neuropeltis,	*Wall.*	
ovata,	"	
Lettsomia,	*Roxb.*	
setosa,	"	

HYDROLEACEÆ. Hydrophyls.

Hydrolea,	*Lin.*
zeylanica,	*Vahl.*

GOODENIACEÆ. Goodeniads.

Scævola,	*Lin.*
taccada.	

ပင်လယ်တန်း pen-lay-tan.

LOBELIACEAE. Lobeliads.

Lobelia,	*Lin.*
triangulata,	*Roxb.*
rosea,	*Wall.*

trigona,	*Roxb.*		P.
Griffithiana,			"
succulenta,	*Blume.*	Neilgerry Grass.	ex.

CAMPANULACEAE. BELLWORTS.

Cephalostigma,	*A. D. C.*		
paniculatum,	"		
Codonopsis,	*Wall.*		
truncata,	"		
Campanula,	*Lin.*	(Species?)	
Pongatium,	*Juss.*		
indicum,	*Lam.*		
Cyclodon.			
truncatum,	*Hooker.*		P.
Pentaphragma.			
begoniæplium,	*Wall.*		P.

CINCHONACEAE. COFFEEWORTS.

Nanclea,	*Lin.*		
Cadamba,	*Roxb.*		
မက္၀ ma-oo.			
cordifolia,	*Roxb.*		
ထိန်း hteing.			
hnau, နှော်			B.
khu-hsan, ခူဆန်း ခူတန်း			B.
Knoxia,	*Lin.*	(species?)	P.
Hymenodictyon,	*Wall.*		
thyrsiflorum,	"		
parviflora,			Mc.
Mussænda,	*Lin.*		
Wallichii,	*G. Don.*		
uniflora,	*Wall.*		P.
Gardenia,	*Ellis.*		
florida,	*Lin.*	Cape Jasmine.	ex.
သုံးဆင့်ပန်း thung-hsen-pan.			
coronaria,	*Buch.*	Garland Gardenia.	
ရင်ခတ် yen-khat.			
macrocarpa,	*Carey.*		ex.
enneandra,	*Kon.*		
lucida,	*Roxb.*		ex.
obtusifolia,	"		
longispina,			Mc.
dumentora,			"
costata,			"
Randia,	*Houst.*		
kyet-tet, ကျက်တက်			

oliginosa, Mc.

Rondeletia.

tinctoria, Mc.

တမာရောကိ။ ta-ma-yoke.

Randia, *Houst.*

dumetorum, *Lam.*

cuneata, *Wall.* (Other species.)

Dentella, *Forst.*

repens, *Roxb.*

Hedyotis, *Lin.*

racemosa, *Lam.*

Burmanniana, *Brown.*

ramosa, "

Greenea, *Wight.*

Wightiana, *W. & Arnott.*

Hamelia, *Jacq.*

patens, " ex.

Morinda, *Vaill.*

citrifolia, *Lin.* ex.

ညောကြီး။ nyah-gyee, နိုပးဆး။ nie-pæ-hsæ:

exserta, *Roxb.*

ညော။ nyau.

persicæfolia, *Buch.*

bracteata, Mc.

ယဲယို။ yai-yo.

nyau-hwee, ညောဖြူ။

Pæderia, *Lin.*

fœtida, "

lanuginosa, *Wall.*

Chiococca, *P. Browne.*

racemosa, *Jacq.* ex.

Ixora, *Lin.*

coccinea, " Crimson Ixora. ex.

ပန်းစရိတ်။ pan-sa-yeik.

parviflora, *Vahl.* ex.

pallens, *Wall.* Wild Ixora.

alba, "

Pavetta, *Lin.*

tomentosa, *Sm.*

indica, P.

Coffea, *Lin.*

arabica, " ex.

Psychotria, " (Species ?)

Axanthes, *Wight.*

longifolia, "

Spermacoce, *Lin.*
articularis, "
Coffeaceæ, *D. C.*
kyet-tet, ကျက်တက်။
Cinchonaceæ.
hsouk, ဆောက်။
kyet-yung, ကျက်ရှုန်။
yæ-lung-khyan-tha, ရေလုံခြမ်းသာ။
thæ-a-dæ, (Sgau.)
ka-thee-tu-sau, "

CAPRIFOLIACEAE. HONEYSUCKLEWORTS.

Lonicera, *Lin.* Honeysuckle.
japonica, *Thunb.* ex.
Viburnum. *Lin.*
fœtidum, *Wall.*

GALIACEAE. MADDERWORTS.

Rubia, *Tournef.*
cordifolia, *Lin.*

COMPOSITAE. DAISYWORTS.

Veronia, *Schreb.*
teres, *D. C.*
aspera, "
blanda, "
attenuata, "
calycina, "
elænifolia, "
multiflora, *Less.*
Decaneurum, *D. C.*
grande, " ex.
divergens, "
Centrantherum, *Cass.*
intermedium, *Less.* ex.
Cyanopis, *Blume.*
pubescens, *D. C.*
Elephantopus, *Lin.*
scaber, *D. C.*
Ageratum, *Lin.*
conyzoides, *D. C.*
Eupatorium, *Tournef.*
Burmanicum, *D. C.*
Astor, *Lin.* Starwort, or Christmas daisy. (Species ?) ex.
Anthroisma.
lacinatum, *D. C.*
Sphæranthus, *Vaill.*

microcephalus.
Cyathocline, (Species ?)
Microgloss. *D. C.*
sessiliflora, ex.
Conyza, *Lin.*
semipinnatafida, *D. C.*
striata, "
Blumea, "
Wightiana, "
lactucæfolia, "
flava, "
lapsauoides, "
hymenophylla, "
napifolia, "
membranaceæ, "
visculosa, "
cuneifolia, "
holosericea, "
fasciculata, "
glomerata, "
spinellosa, "
oxyodonta, "
alata, "
aurita, "
grandis, " Camphor Plant.
ဖုံးမသိန်း pung-ma-theing.
Pluchea, *Cass.*
indica, *Less.*
foliosa.
Monenteles, *Labil.*
spicatus,
Epaltes, *Cass.*
linearifolia.
littoralis. ?
Inula, *Lin.*
polygonata.
oblonga.
cappa, *D. C.*
Dahlia, *Cav.* (Species ?) ex.
Wollastonia, *D. C.*
biflora,
scabriuscula.
Coreopsis, *Lin.* (Species ?) ex.
Helianthus, " Sunflower. (Species ?) ex.
Bidens, "
Wallichii.
Spilanthes, *Jacq.*

acmella, ex.
ဖိစပ် ဟင်းကလာ hen-ka-la.
paniculata.
Pyrethrum, *Gærtn.* Feverfew.
indicum, Chrysantemum. ex.
sinense ?
Chrysanthemum. *Lin.*
fœniculaceum, ex.
Artemesia, " Wormwood.
Abrotanum, " Southernwood. ex.
Gnaphalium, " Everlasting.
indicum, "
Gynura, *Cass.*
nepalensis, ex.
bicolor.
Senecio, *Lin.* (Species ?)
Notonia, *D. C.*
crassissima, "
Aplotaxis, "
carthamoides, "
Auclandia.
costus, *McClell.*
Calendula, *Lin.*
officinalis, " Common Marygold. ex.
ထပ်တရာ htat-ta-ya.
Carthamus, *Tournef.*
tinctorius, *Lin.* Safflower. ex.
ဆူး hsoo.
Carduus ?
species ? "seems new." *Dr. Thomson.*
Gerbera, *Lin.*
ovalifolia, *D. C.*
Lactuca, *Tournef.*
sativa, *Lin.* Lettuce. ex.
Sonchus, " (Species ?)

DIPSACEAE. Teazelworts.

Dipsacus, (Species ?)

PLUMBAGINACEAE. Leadworts.

Plumbago, *Lin.*
rosea, " Flower red. ex.
ကင်ခြေပန်နီ ken-khyoke-nee.
zeylanica, *Lin.* Flower white. ex.
ကင်ခြေပန်ဖြူ ken-khyoke-phyoo.
capensis, *Thunb.* Flower blue. ex.

Ægialitis,	*Brown.*		
rotundifolia,	*Roxb.*		

CORDIACEAE. SEBESTENS.

Cordia,	*Lin.*		
Myxa,	"		
သနတ်။ tha-nat.			

BORANGINACEA. BORAGEWORTS.

Trichodesma,	*Brown.*		
indicum,	"		
perfoliatum,	*Wall.*		
Heliotropium,	*Tournef.*		
peruvianum,	*Lin.*		ex.
brevifolium,	*Wall.*		
Tournefortia,	*Lin.*		
ovata,	*Wall.*		
Ehretia,	*Lin.*		
yen.yai-myouk-myee, ရင်ရဲမြောက်မြီး။			

LABIATAE. MINTWORTS.

Ocimum,	*Lin.*	Basil.	
Basilicum,	"		ex.
sanctum,	"	Holy Basil.	ex.
vilosum,			Mc.
ပင်းစိန်း။ လှုံ။ pen-zeing, hlung.			
canum,	*Bentham.*		
Geniosporum,	*Wall.*		
strobiliferum,	*Benth.*		
Acrocephalus,	*Bent.*		
capitatus,	"		
Moschosma,	*Reichb.*		
polystachya,	"		
Orthosiphon,	*Bent.*		
rubicundus,	"		
stamieus,	"		
roseum.	"		ex.
incurvus,	"		"
Plectranthus,	*L' Her.*		
coetsa,	*D. Don.*		
ternifolius,	"		
aromaticus,	*Roxb.*		
ပန်ဘူ။ pen-bu.			
Anisochilus,	*Wall.*		
carnosus.	"		
pallidum,	"		
Pogostemon,	*Desf.*		
paniculatum,	*Bent.*		

Dysophylla,	*Blume.*		
auricularia,	*Bl.*		
quadrifolia,	*Bent.*		
Elsholtzia,	*Wild.*		
blanda,	*Benth.*		
incisa,	"		
Perilla,	*Lin.*		
ocymoides,	"		
Mentha,	"	Mint.	ex.
sylvestris,	"		
ဘူဒီနာ boo-dee-na.			
Salvia.	*Lin.*		
officinalis,	"	Sage.	
splendens,	*Sello.*		
Scutellaria,	*Lin.*		
incurva,	*Wall.*		
discolor,	*Colebr.*		
Leucas,	*Brown.*		
ovata,	*Benth.*		
teres,	"		
strigosa,	"		
pilosa,	"		
flaccidia,	*Brown.*		
martinicensis,	"		
zeylanica,	"		
nutans,	*Spreng.*		
dimidiata,	"		
Leonotis,	*Brown.*		
Leonurus,	"		
Holmskioldia,	*Retz.*		
sanguinea,	"		ex.
Colquhounia,	*Wall.*		
elegans,	"		
Gomphostemma,	"		
strobilinum,	"		
viride,	"		
oblongum,	"		
lucidum,	"		
crinitum,	"		
melissæfolium,	"		ex.
Teucrium,	*Lin.*		
stoloniferum,	*Buch.*		
quadrifarium.			
Ajuga,	*Lin.*		
macrosperma.			
Anisomeles,	*Brown.*		
ovata,	"		
malabarica.	"		

candicans, *Benth.*
Cymaria, *Benth.*
dichotoma, "
elongata, "
Labiatæ.
soo-la-na-pha, စူလာနဖာ၊
phau-ka-bo, (Sgau.)
hau-wau-thwæ, "
klo-ma-nee, "
phau-lai-thwai, "
hau-phgee, "

VERBENACEAE. VERVAINS.

Clerodendron, *Lin.* Clerodendron.
squamatum,* *Vahl.* Scarlet do. ex.
ဗုကြီးနီ။ bu-gyee-nee.
neriifolium, *Wall.* ex.
nutans, "
ငရန်ပတူ။ gna-yan-pa-too.
roseum, *Wall.*
siphonanthus, *Brown.*
inerme, *Gartn.*
serrata.
urticæfolium.
fragrans, *Vent.* Fragrant Clerodendron.
viscosum, "
ဗုကြီးဖြူ။ bu-gyee-phyoo.
hnen-eik, နှင်းအိပ်။ Double Flowered "
Callicarpa, *Lin.*
arborea, *Roxb.*
lanceolaria, "
macrophylla, "
Vitex, *Lin.* Chaste Tree.
trifolia, " ex.
ကြောင်ပန်း။ kyoung-ban.
arborea, *Roxb.*
ထောက်ရှာ။ htouk-sha.
pubescens, *Vahl.*
Premna,
serratifolia. *Lin.*
integrifolia, *Wight.*
တောင်သန်ကြီး။ toung-than-gyee.

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*This may be Wallich's roseum, of which I have no description.

Congea,	*Roxb.*		
azurea,	*Wall.*		
tomentosa,	*Wight.*		
velutina,	"		
ကယေား ka-yau.			
Gmelina,	*Lin.*		
arborea,	*Roxb.*		
ကျွန်းဖို၊ kywon-pho.			
Tectona,	*Lin.*	Teak.	
grandis,	"		
ကျွန်း၊ kywon.			
ternifolia,	*Buch.*		
တလဟတ်၊ တဟတ်၊ ta-hat.			
Streptium,	*Roxb.*		
asperum,	"		
Verbena,	*Lin.*		
officinalis,	"	Common Vervain.	ex.
bonariensis,	"		"
Aloysia,	*Ort.*		
citriodora ?	"		"
Stachytarpheta,	*Vahl.*		
Mutabilis,	"		ex.
urticæfolia,	*Sims.*		
Lantana,	*Lin.*		
nivea,	*Vent.*	Changable Lantana.	
odorata,	*Lin.*		ex.
alba.			
aculeata,	"		
Hymenopyramis,	*Wall.*		
brachiata,	"		
Avicennia,	*Lin.*		
tomentosa,	"		
Glossocarya,	*Wall.*		
mollis,	"		
Spenodesme,			
Griffitiana,	*Wight.*		

MYOPORACEAE. MYOPORADS.

Myoporum,	*Banks.*	
acuminatum,	*Brown.*	ex.

PEDALIACEAE. OIL-SEEDWORTS.

Sesamum,	*Lin.*	
indicum.	"	ex.
နှန်း၊ hnan.		
hnan-ma, နှန်းမ၊		

GESNERACEAE. Gesnerworts.

Chirita, *Ham.*
hamosa, *D. Can.* P.
Rhynchoglossum, *Bl.*
obliguum, *D. Can.* "

BIGNONIACEAE. Trumpet-flowerworts.

Bignonia, *Tournef.*
adenophylla, *Wall.*
fimbriata, "
suberosa, *Roxb.*
coronaria, *McClell.*
spathoidia, "
crispa.
သံသစ်။ than-theet.
thu-gai-nee, သူကဲနီ။
lain-bha, လိုင်ဘ။
kywai-tha, ကွဲသဝါ။ (Sgau.)
Spathodea, *Beauv.*
stipulata, *Wall.* Stipuled Trumpet Flower
ဘက်သနီး။ bet-than or ဖက်သနီး။
serrulata, *Wall.*
ma-lwa, မလွ။ Brandis.
Kheedii,
သခွတ်။ *tha-khwot*
Tecoma, *Juss.*
jasminoides, *G. Don.* ex.
Calosanthes, *Bl.*
indica, " Indian Trumpet Flower.
ကျောင်ရှာ။ kyoung-sha.
Trigonocarpus, *Voigt.*
Bignoniaceæ.
kyoung-sha-touk. ကျောင်ရှာတောက်။

CYRTANDRACEAE. Gesnerworts.

Æschynanthus, *Jack.* "Four species." P.
parasiticus, *Wall.* Parasitical Incarvillia.
Loxotis, *Brown.*
intermedea, *Bent.*

ACANTHACEÆ. Justiciaworts.

Thunbergia, *Lin.* (an undescribed species.)
နွယ်ညို။ nway-hnyo.
Hexacentris, *Nees.*
coccinea, " ex.

Nelsonia,	*Brown.*	
tomentosa.	*Dietr.*	
Adenosma,	*Brown.*	
biplicata,	*Nees.*	
Ebermaiera,	"	
humilis,	"	
Hemiadelphis,	"	
polysperma,	"	
Dipteracanthus,	"	
ciliatus,	"	
Ruellia,	*Lin.*	
indigofera,	*Griff.*	ex.
ဝဲကြီးမ် mai-gyee.		
sarmentosa,	*Nees.*	ex.
quadrifaria,	*Wall.*	
Neesiana,		P.
Goldfussia,	*Nees.*	
anisophylla,	"	ex.
Asystasia,	*Bl.*	
coromandeliana,	*Nees.*	
Adenacanthus,	"	
acuminatus,	"	
Strobilanthes,	*Bl.*	
rosea,	*Nees.*	
glaucescens,	"	
amplectens,	"	
Asteracantha,	"	
longifolia,	"	
Barleria,	*Lin.*	
hirsuta,	*Nees.*	
polytricha,	*Wall.*	
coerulia,	*Roxb.*	
dichotoma,	"	
Prionitis,	*Lin.*	
longiflora,	"	
hystrix,	"	
Ætheilema,	*Brown.*	
reniforme,	*Nees.*	
Lepidagathis,	*Wild.*	
fascicula,		
hyalina,	*Nees.*	
mucronata,	"	
dulcis,	"	
Neuracanthus,	"	
tetragonostachyus,	"	
Blepharis,	*Juss.*	
boerhaaviæfolia,	*Nees.*	
Dilivaria,	*Juss.*	

ilicifolia,	*Juss.*	Holly-leaved Acanthus.	
ခရာ။ kha-ya.			
ebracteata,	"		
Crossandra,	*Salisb.*		
infundibuliformis,	*Nees.*		
Phlogacanthus,	"		ex.
asperulus,	"		"
Rostellaria,	"		
procumbens,	"		
Graptophyllum,	"		
hortense,	"	Picture Plant.	ex.
ငွေပန်း။ gnwæ-ban.			
lurido-sanguinem.			
စလပ်နီး sa-lat-nee.			
Adhatoda,	*Herm.*		
Betonica,	*Nees.*		
Vassica,	"		
argprostachya,	"		
Leptostachya,	*Mitch.*		
virgata,	*Nees.*		
Gymnostachyum.	"		
leptostachyum,	"		
Gendarussa,	*Rumph.*		
vulgaris,	*Nees.*		
ဗဝါနက်။ ba-wa-net.			
Hygrophilla,			
obovata,	*Nees.*		
4-valiz,	"		
Erythracanthus,	"		
obtusus,	"		
Gendarussa.			
bifaria,	*Nees.*		
decussata,	"		
ventricosa,	"		
micrantha,	*Wall.*		
Eranthemum,	*Brown.*		
cinnabarinum,	*Wall.*	Cinnabar Eranthemum.	
macrophyllum,	"		
Justicia,	*Lin.*		
dentata,	*Klein.*		
tau-sa-lat, တောစလပ်။			
Rhinacanthus,	*Nees.*		
communis,	"		ex.
Rungia,	"		
parviflora,	"		
pectinata,			

Peristrophe,	*Nees.*	
tinctoria,	"	
bicalyculata,	"	
fragilis,	"	
acuminata,	"	
Andrographis,	*Wall.*	
echioides,	*Nees.*	
Haplanthus,	"	
tener,	"	

LENTIBULACEAE. BLADDERWORTS.

Utricularia,	*Lin.*	
fasciculata,	*Roxb.*	
Punctata,	*Wall.*	P.
affinis,	*Wight.*	"
bifida,	*Lin.*	"
racemosa,	*Wall.*	"
filicaulis,	"	"
orbiculata,	"	"

OROBANCHACEAE. BROOM RAPEWORTS.

Æginetia,	*Roxb.*	
indica,	"	

SCROPHULLARIACEAE. FIGWORTS.

Linaria,	*Tournef.*	
ramosissima,	*Wall.*	
Pentstemon,	*Michx.*	
levicaudatum,		
Russelia,	*Jacq.*	
floribunda,	*Kth.*	ex.
juncea.	*Zucc.*	ex.
Bonnaya,	*Lk.*	
veronicæfolia,	*Spreng.*	
verbenæfolia,	"	
tenuifolia,	"	
parviflora,	*Benth.*	
Herpestris,	*Gartn.*	
Monniera,	*Kuth.*	
Scoparia,	*Lin.*	
dulcis,	"	
Glossostylis,	*Cham.*	
avenis,	*Benth.*	
Centranthera,	*Brown.*	
Brunnoniana,	*Wall.*	
Lindenbergia,	*Lin.*	
macrostachya,	*Benth.*	P.

SOLANACEA. NIGHTSHADES.

Capsicum,	*Tournef.*		
grossum,	*Willd.*	Red Pepper.	ex.

purpureum, *McClell.*
minimum,
ငရုပ် gna-yoke.
gna-yoke-mo-hmyau, ငရုပ်မိုးမျှော်
Solanum, *Lin.* Night shade.
tuberosum, " Potatoe. ex.
rubrum, *Will.*
verbascifolium, *Lin.*
indicum, "
melongena, " Brinjal, Egg Plant. ex.
ခရုန်း kha-yan.
kha-yan-khyen, ခရုန်းချဉ်း
ta-byæ, တဒြေ
næ-poo-kha-yan, နေပူခရုန်း
kha-yan-gywot, ခရုန်းကျွတ်
" " pa-mai. ခရုန်းပါဓ
Lycopersicum, *Tournef.*
esculentum, *Wall.* Tomatoe. ex.
ခရုန်းမြေဖုံ kha-yan-mya-phung.
Physalis, *Lin.* Winter Cherry.
peruviana, " Brazil Gooseberry. ex.
pung-ben * ပုဒ်ပင်
Solandra, *Swz.*
grandiffora, " ex.
Datura, *Lin.* Thorn Apple.
Metel, " White " " ex.
alba, *Rumph.* " " "
ပဒိုင်းခပ်တား ပဒိုင်းဖြူ pa-daing-phoo.
fastuosa, *Wall.* Purple flowered " ex.
Nicotiana, *Tournef.*
tabacum, *Lin.* Tobacco. ex.
ဆေး hsæ.
Solanaceae,
khau-kha, (Sgau.)

GENTIANACEAE. GENTIANWORTS.

Canscora, *Lin.?*
diffusa, *Brown.*
schultesii, *Wall.*
Exacum, *Lin.*

* This species differs slightly from *P. minima ; Lin.* but not enough to constitute in my judgment a distinct species.

pteranthum, *Wall.*
Agathotes, *Don.*
chirayta.

APOCYNACEAE. Dogbanes.

Echites, *Lin.*
rynchosperma, *Wall.*
paniculata, *Roxb.* ex.
Cleghornia, *Wight.* (Species ?)
Epichsianthus, *Voigt.*
macrophyllus, " ex.
Ichnocarpus, *Brown.*
frutescens, "
Vallaris, *Burm.*
dichotomus, *Wall.*
Aganosma,
acuminata, *G. Don.*
ကျက်ပေါင်ဖို။ kyet-boung-pho.
Nerium, *Lin.* Oleander.
odorum, *Ait.* Fragrant " ex.
Strophanthus, *D. C.*
brevicaudatus, *Wight.*
Wrightia, *Brown.*
antidysenterica, "
tomentoso, *Sch.*
coccinia, *Sims.* Scarlet Nerium. ex.
Wallichii, *A. D. C.*
tinctoria, *McClell.*
Vinca, *Lin.* Periwincle.
rosea, " ex.
သတော်မညိုးပန်း။ them-bau-ma-hnyo-ban.
Tabernæmontana, *Plum.* Tabernæmontana.
coronaria, *Brown.* Garland do. ex.
recurva, *Roxb.* Recurved do.
တောစလင်း။ tau-sa-lat.
rugosa, *Wall.*
parviflora, P.
Plumeria, *Tournef.*
acuminata, *Ait.* China Champac. ex.
Allamanda, *Lin.*
cathartica, " ex.
ဖရောင်းပန်း။ pha-young-ban.
Carissa, *Lin.*
carandas, " Bengal Currants. ex.
villosa, *Roxb.*
Cerbera, *Lin.*

Manghas, *Lin.*
ကလွာ။ ka-lwa.
Calpicarpum, *G. Don.*
Roxburghii, " Periwincle Tree.
စလဲ။ sa-lat.
Hunteria, *Roxb.*
lanceolaria, *Wight.*
Alyxia, *Banks.* (Species ?)
Ophioxylon, *Lin.*
serpentinum, "
majus, *Wall.*
Pottsia,
Hookeriana, *Wight.*
Willughbeia, *Scop.*
martabanica, *Wall.*
သစ်ကျောက်နွယ်။ theet-kyouk-nway.
Epigynum, *Wight.*
griffithianum, "
Plumerieæ.
myet-hna-ban, မျက်နှာပန်း။ Lancewood Tree.*
Echiteæ.
kyet-poung, ကြက်ပေါင်း Tennasserim Caoutchouc Creeper.
Apocynaceæ.
sai-yai, စေ့ယဲ
mai-too, မဲတူ။
tha-pai-khau du-deu, (Sgau.)
nau-tha-æ, "
nai ? "
ka-thee-khleu, "
hsau-ka-htau, "

ASCLEPIACEAE. Milkweedworts.

Ceropegia, *Lin*
lucida, *Wall.*
Arnottiana, *Wight.*
oo-ta-lung. ဥတလုံး။
Caralluma, *Brown.*
fimbriata, *Wall*
Boucerosia, *Wight.*
crenulata, "

* While this work is going through the press, I am unable to obtain a sight of the flower or fruit of this shrub ; but so far as I can recollect the seeds are naked and the ovary is two celled, which places it in Plumeriæ, Alph. De Candolle.

Hoya,	*Brown.*		
carnosa,	"	Wax Flower.	ex.
orbiculata,	*Wall.*		
Hoya,			
parviflora,	*Wight.*		
Lacuna,	*Buch.*		
Marsdenia,	*Brown.*		
tinctoria,	"	Asclepia-blue Dye.	
tenacissima ?	*Wight.*		
Pergularia,	*Lin.*		
odorotissima,	*Sm.*	Fragrant Pergularia, or Cowslip Creeper.	ex.
pallida,	*Wight.*		
Dischidia,	*Brown.*		
cuneifolia,	*Wall.*	(Four other species.)	
Gymnema,	*Brown.*		
acuminata,	*Wall.*		
molle,	"		
tingens,	*Spreng.*		
latifolium,	"		
Sarcolobus,	*Brown.*		
globosus,	*Wall.*		
carinatus,	"		
Tylophora,	*Brown.*		
vomitoria,	*Voigt.*		
Asclepias,	*Lin.*		
curassavica,	"	Spurious Ipecacuanha.	ex.
Calotropis,	*Brown.*		
gigantea,	"		ex.
ဖရိုး ma-yo.			
Wallichii,	*Wight.*		
heterophylla,	*Wall.*		
Rhaphistemma,	"		
pulchellum,	"		
Oxystelma,	*Brown.*		
Wallichii,	*Wight.*		
Holostemma,	*Brown.*		
fragrans,	*Wall.*		
Hemidesmus,	*Brown.*		
Wallichii,	*Wight.*		
Gurua,	*Buch.*		
obovata,	"		
Alstonia ?			
let-htuk, လက်ထုတ်၊			
Streptocaulon,	*Wight.*		
tomentosum,	"		
extensum,	"		
Myriopteron,	*Griff.*		
paniculatum.			

Asclepiaceæ.

kywot-nway, ကျွတ်နွယ်။
kloo-bau, (Sgau.)

LOGANIACEAE. Loganiads.

Fagræa, *Thunb.*
fragrans, *Roxb. Wall. Griff.* (Cyrtophyllum fragrans, *Falconer.*)

အနှန်။ a-nan.

carnosa, *Jack.*
crassifolia, *Bl.*
globosa, *Wall.*
Strychnos, *Lin.*
Nux vomica, "

ခပေါင်။ခဗောင်း။ kha-boung.

potatorum, *Lin.* Clearing nut.

ခပေါင်းရေကြည်။ kha-boung-yæ-kyie,

laurina, *Wall.* P.
Mitteola, *Lin.*
odenlalandioides, *Wall.* P.
Mitragyne, *Korth.*
capillaris, *Wall.*

OLEACEAE. Oliveworts.

Olea, *Tournef.*
attenuata, *Wall.*

JASMINACEA. Jasmineworts.

Jasminum, *Forsk.*
sambac, *Ait.* Arabian Jasmine. ex.

စပယ်။မလိ။ sa-bay, ma-lee.

simplex, Single Flowered.
duplex, Double " plenum, or great double Arabian, or Tuscan Jasmine.

သဧော်ဗမလိ။ thæm-bau-ma-lee.

grandiflorum, *Lin.* Spanish or Catalonian Jasmine. ex.

မြတ်လေး။ myat-læ.

syringæfolium, *Wall.* Wild Jasmine.
bracteatum, P.
Jasminum.

သင်းခွေ။ then-khwæ.

scandens, *Vahl.* ex.
Nyctanthes, *Lin.*
arbortristis, " Tree of Mourning. ex.

ဆိတ်သရဲ။ hseik-ba-lu.

GNETACEAE. Joint firs.

Gnetum, *Lin.*
gnemon,
scandens,
Brunobianum.

CYCADACEAE. Cycads.

Cycas, *Lin.*
circinalis, "
မူတိုင်း။ mu-daing.

PINACEAE. Conifers.

Pinus, *Lin.*
Latteri, *F. M.*
ထင်းရူး။ hten-roo.
Dammara, *Rumph.*
orientalis, *Lamb.*
သစ်မင်း။ theet-men.

EQUISETACEAE. Horsetails.

Equisitum, *Lin.*
debile, *Roxb.*

ZINGIBERACEAE. Gingerworts.

Zingiber, *Gartn.* Ginger.
Officinale. *Roscoe.* Common Ginger. ex.
ချင်းစိန်း။ khyen-seing.
zerumbet, *Roscoe.*
pardocheilum, *Wall.*
squarrosum, *Roxb.*
panduratum, "
Zingibier.
barbatum, *Wall.*
me-tha-len, မိသလင်။
kan-eik, ကန့်အိတ်။
khung-htai-wen, ခုမ်ထဲဝင်။
sa-kwa, စာကွ။
Curcuma, *Lin.* Tumeric.
longa, *Roxb.* Common Tumeric. ex.
ဆန္ဒင်း။ hsa-nwen.
æruginosa, *Roxb.*
attenuata, *Wall.*
Comosa, *Roxb.*
elata, "
ornata, *Wall.*
cordata, "
Parviflora. "

petiolata, *Roxb.*
plicata, *Wall.*
strobilina, "
Roscoeana, "
hman-then, ဖန်သင်း

Dischoma, *Wight.*
glaucum, *Voigt.*
Kœmpfera, *Lin.*
Galanga, "
ပန်းဥကမုန်း ခဖုန်း kha-mung.
rotunda, *Lin.* Fragrant Kœmpfera.
မြေပန်တောက်။ myæ-ban-touk.
marginata, *Corey.*
candida. *Wall.* White Kœmpfera.
ပန်းဥဖြူ။ pan-oo-phoo.
Roscoeana, *Wall.*
parviflora, "
ka-mung-nee, ကမုန်းနီ။
" " net, ကမုန်းနက်။

Kœpmfera.
ka-mung-taing-bya, ကမုန်းတိုင်ပြာ။
ka-mung-kyet-la, ကမုန်းကျက်လာ။
kyo-ka-mung, ကြိုကမုန်း။

Amomum, *Lin.*
cardamomum, "
ဗင်း။ ben?
corynostachyum, *Wall.* (Several other species.)
gung-men, ဂုမ်မင်း။

Elettaria, *Rheed.*
cardamomum, *White.* Cardamomum Plant.
ဘလာ၊ဗလာ။ ba-la, pa-la.

Hedychium, *Kon.* Garland Flower.
coronarium, " ex.
လမ်းသေး။ lan-thæ.
သစ်ခကိလမ်းသေး။ theet-khet-lan-thæ. Narrow Petalled Garland Flower.
barbatum, *Wall.*

Alpinia, *Lin.*
Allughas, *Roscoe.*
bracteata, *Roxb.*
nutans, *Roscoe.*
ပဂေါသိန် pa-gau-theing.
pa-gau-gyee, ပဂေါကြီး။

Gastrochilus, *Wall.*
pulchurrimus, "
longiflorus, "
Monolophus, "
elegans, " Elegant Cœmpfera.
ကွမ်ကတိုး kwon-ka-do.
Costus, *Lin.*
speciosus, *Sm.*
Costus,
argyrophyllus, *Wall.*
ပလံတောင်ဝေး pa-lan-toung-wæ.
thoo-læ-pha-do. (Sgau.)
Globba, *Lin.*
marantina, "
Careyana, *Roxb.* Carey's Globba.
ပဒိုင်းဂျိုး pa-deing-gno.
expansa, *Wall.*
bracteolata, "
Zingiberaceæ.
pa-dat-swa, ပဒတ်စွာ။
ma-la, မဒံလာ၊
ma-la-men, မဝလာမင်း။
sa-boo, စဘူး
sheet-ken, ရှိခ်ကင်း။
sa-boo-khoung, စဘူးခေါင်း။
" " sung-koo, စဘူးခွံကူး။
po-khleu, (Sgau.)
phau-mo-phau, "
pau-lau, "
po-læ-o, "
" bla-yu-kho, "
" pa-yo, "
pau-mo-bau, "
po-hsau-koo, "
" " thwee, "
" kheu-htee, "
" " kho, "
" " pree-o, "

MARANTACEAE. Arrow-rootworts.

Phrynium, *Willd.*
spicatum, *Roxb.*
macrostachyum, *Wall.*
wa-thaing, ဝါသိုင်း။

Phrynium,
myen-wa, မြင်ဝါး
yung, ယုန်း
Maranta, *Lin.* Arrow-root.
arundinaceæ, "
ပင်ပွား peu-bwa.
dichotoma, *Wall.*
သင်း then.
Canua, *Lin.* Indian Shot.
indica, "
ဗုဒ္ဓသရနှံ bud-da-tha ra-na. ex.

MUSACEAE. BANANAWORTS.

Musa, *Tournef.* Plaintain Tree.
paradisiaca, *Lin.* ex.
ငှက်ပျော hnget-pyau.
glauca, *Roxb.*
pyau-men, ပျောမင်း
rubra, *Wall.*
tau-pyau, တောပျော
Ravenala, *Adans.* Traveller's Tree.
madagascariensis, *Sonner.* ex.

AMARYLLACEAE. NARCISSUSWORTS.

Zephyranthes, *Herb.*
tubispatha, " ex.
Hippeastrum, "
equestre, " ex.
solandræflorum, " "
Crinum, *Lin.*
procerum, *Carey.*
rigidum, *Herb.*
macrocarpon, *Carey.* Large Fruited Crinum.
ensifolium, *Roxb.*
amoenum, "
pratense, *Herb.*
Crinum,
lorifolium, *Roxb.*
elegans, *Carey.*
erythrophyllum, "
ornatum, *Herb.* Ornamental Crinum.
zeylanicum, *Lin.*
Herbertianum, *Wal.*
ပဒိန်း pa-daing.*
yæ-pa-daing, ရေပဒိန်း Water Crinum.

*Applied to all the species.

Eurycles,	*Salisb.*	
amboinensis,	"	ex.
လမင်း၊ နေမင်း၊ la-men, næ-men.		
Hymenocallis,	*Herb.*	
amoena,	"	ex.

TACCACEAE. TACCADS.

Tacca,	*Forst.*	
pinnatifida,	"	
ပံခတတ်၊တောက်တာ၊ touk-ta.		
lœvis,	*Roxb.*	P.

IRIDACEAE. IRIDS.

Iris,	*Lin.*	
nepalensis,	*Wall.*	ex.
Pardanthus,	*Ker.*	
chinensis,	" Tiger Lily.	ex.
သစ်စာ၊ theet-sa.		

BROMELICEAE. PINE-APPLEWORTS.

Ananus,	*Plum.*	
sativus,	*Schult.* Pine-apple.	ex.
နာနက်၊ na-nat.		
striatifolia,	*Roxb.* Ribbon-leaved "	

HYDROCHARACEAE. HYDROCHARADS.

Buotia,	*Bigel.*	
cordata,	*Wal.*	

BURMANNIACEAE. BURMANNIADS.

Burmannia.		
triflora,	*Wight.*	P.
juncea,	*Brown.*	"

ORCHIDACEAE. ORCHIDS.

LIPARIDAE.

Liparis,	*L. C. Rich.*	
serræformis,	*Lindl.*	
Microstylis,	*Nutt.*	
bilobata,	*Lindl.*	
Oberonia,	"	
anthropophora,	"	
rufilabris,	"	P.
Griffithiana,	"	"

DENDROBIDÆ.

Dendrobium,	*Swz.*		
formosum,	*Roxb.*	Charming Dendrobium.	
secundem,	*Wal.*	Purple "	
Pierardi,	*Roxb.*	Yellow "	
aggregatum,	"	" "	
cretaceum,		White "	
teretifolium,	*Brown.*	Taper-leaved "	
calceolus,	*Roxb.*		
Cambridgeanum,	*Paxt.*		
purpureum,	*Roxb.*		
Lindleyana,			
cucullatum,			
cuspidatum,	*Lindl.*		
pygmœum,	"		
angulatum,	*Wal.*		
polyanthum,	"		
longicornu,	*Lindl.*		
moschatum,	*Wal.*		
albo-sanguineum,			
anceps,			P.
cuspidatum,			"
eulophotum,	*Grif.*		"
pumilam,	"		"
Aelinea,	"		"
extinctorium,	*Lindl.*		"
infundibulum,	"		"
xanthophlebiam,	"		"
Dalhousianum,	*Pax.*		"
incurvum,	*Griff.*		"
pycrostachymn,	*Lindl.*		"
Peguanum,	"		"
vestitum,			"
clavatum.			"
Drymoda,	"		
pieta,	"		P.
Bolbophyllum,	*Pet. Th.*		
auricomum,	*Lindl.*		
Careyanum,	*Spreng.*	Carey Bolbophyllum.	
radiatum,	*Lindl.*		
umbellatum,	"		
Sunipia,	"		
ta-zeen-ban,	တစဉ့်ပန်း	Fragrant Sunipia.	
Cirrhopetalum,	*Lindl.*		
Lindleanum,	*Wal.*		
medusa,			
Trias,	*Lindl.*		
oblonga,	"		

flava,	*Lindl.*		
bractescens,			
obesa,	"		
ornata,	"		P.
elongata,	"		"
lanata,	"		"
sicaria,	*Griff.*		"
Merguensis,	*Lindl.*		"
affinis,	*Griff.*		"
pulchella,	"		"
pulvinata,	"		"
truncata,	"		"
floribunda,	*Lindl.*		"
Parishii,	"		"

EPIDENDREAE.

Coelogyne,	*Lindl.*		
flaccida,	"		
trinervis,	"		
Pholidota,	"		
articulata,	*Lin.*		
imbricata,			P.
Phaius,	*Lour.*		
albus,			P.
Spathoglottis,	*Bl.*		
pubescens,	*Lindl.*		
Ania,	"		
angustifolia,	"		

VANDEÆ.

Eulophia,	*Brown.*		
fusca,	*Wall.*		
promensis,	*Lindl.*		
graminea,	"		P.
Vanda,	*Brown.*		
longifolia,	*Lindl.*		
gigantea,	"		
teretifolia,	"		
Cleisostoma,	*Blume.*	(Species ?)	
Saccolabium,	"		
papillosum,	*Lindl.*		
giganteum,	"		
obliquum,	"		
rubrum,	"		
retusum,	Voigt.	Spotted Succolabium.	
မိုးမခံ mo-ma-khan.			
micranthum,	*Lindl.*		P.
Œceoclades,	"		
ampullacea,	*Lin.*	Red Saccolabium.	

flexuosa,	*Lindl.*		
Aerides,	*Lour.*		
odoratum,	"	Fragrant Aerides.	
appendiculatum,	*Wall.*		
decumbens,	*Griff.*		P.
Cymbidium,	*Swz.*		
aloifolium,	"		
Wallichii,	*Lindl.*		
Calanthe,	*Brown.*		
vestita,	*Wall.*		
Limatodes,	*Bl.*		
rosea,			P.
		(Another species.)	"
Geodorum,	*Jack.*		
candidum,	*Wall.*		
pallidum,	*Don.*		
attenuatum,	*Griff.*		
apendiculatum.			
ဆင်ကာလာကန်ဒီ,	hsen-kala-kan-dee.		

OPHREAE.

Gymnadenia,	*Brown.*		
sesamoides,	*Lindl.*		P.
Platanthera,	*L. C. Rich.*		
brachyphylla,	*Lindl.*		
robusta,	"		
longibracteata,	"		
Cæloglossum,	"		
lacertiferum,	"		
Habenaria,	*Willd.*		
commelinæfolia,	*Wall.*		
lucida,	"		
promensis,	*Lindl.*		
tricosantha,	*Wall.*		
geniculata,	*Don.*		
rostrata,	*Wall.*		
acuifera,	"		

ARETHUSEAE.

Vanilla,			
(A new species,)	*Falc.*		

NEOTTEAE.

Monochilus,	*Wall.*		
affine,	*Lindl.*		
Georchis,	"		
foliosa,	"		
Tropidia,	"		
curculoides,	"		
Œtheria,	*Blum.*		

mollis, P.
Cypripedium, Toungoo Ladies-slipper.
(Another species in Tenasserim.) P.

PALMACEAE. PALMS.

Areca, *Lin.* Betel Palm.
catechu, " ex.
ကွမ်းသီး kwon-thee.
kwon-thoung, ကွမ်းသောင်း
" bung, ကွမ်းဘုမ်း
myen-thwa, မြင်းသွား
hmo, ဖို
Saguerus, *Rox.* Sago Palm.
Rumphii, "
Wrightea, "
carytoides, " P.
Caryota, (Species ?) "
Arenga, *Labill.* (Species ?)
Calamus, *Lin.* Rattan.
platyspathus, *Griff.*
palustris, "
melanacanthus, "
concinnus, "
nitidus, "
laciniosus, "
longisetus, "
arborescens, " Tree Rattan.
Draco? *Willd.* Dragon's Blood.
ကျိုင်နီ kyeing-nee.
kyeing-ta-boung, ကျိုင်တပေါင်း
yan-ma-hta, ရမ်းထား
kyeing-kha, ကျိုင်ခါး
" na-tha, ကျိုင်နံသား
" tan, ကျိုင်တန်း
" boke, ကျိုင်ပုတ်
phwe-to-ma, ဖွိုတိုမ
ta-nen-tha-ree-kyeing, တနင်းသာရီကျိုင်း
kyeing-phyoo, ကျိုင်ဖြူ
thwon-kyeing, သွန်းကျိုင်
Licuala,
longipes, *Griff.* Stemless Licuala.
sha-zoung, ရှားဇောင်း Walking Cane Palm, or Penang Lawyer.

Zalacca, *Reinw.*
edulis, " Edible Zalacca. ex.
ရင်ကမ်ချင်း yen-gan-khyen.
yen-gan-khyo, ရင်ကမ်ချို။
Calamosagus, *Griff.*
laciniosus, " Rattan-sago Palm.
Borassus, *Lin.* Palmyra Palm.
flabelliformis, " ex.
ထန်း htan.
tau-htan, တောထန်း Wild Palmyra.
Corypha, *Lin.*
umbraculifera, " Talipat, or large Fan Palm. ex.
ဂေါ pæ.
taliera ? *Roxb.* Book-palm.
ဂေါ pæ.
Livistona, *Brown.* Wild Palm.
htan-myouk-lu, ထန်းမြောက်လူ ?
Phœnix, *Lin.*
dactylifera, " Date Palm. ex.
စွန်ပလွန်း swon-pa'lwon.
sylvestris, *Roxb.* Wild Date. ex.
paludosa, " Marsh-date Palm.
သင်ဘောင်း then-boung.
Cocos, *Lin.* Cocoanut.
nucifera, " ex.
ဘုန်း 'ung.
Macrocladus, *Griff.*
yen-khyen ? ရင်ချင်း Karen Cabbage Palm.
Palmaceæ.
wa-young ? ဝါးရှောင်း
ka-la ? ကလာ
ta-kan ? တကမ်း
pa-dat ? ပတတ်
tha-lu ? သလူ
tau-nau-me-hto-htee, (Sgau.)
" " " pree-o, "

PONTEDERACEAE. PICKEREL-WEEDWORTS.

Pontedera, *Lin.*
vaginalis, "
လယ်ပဒေါက် lay-pa-douk.

plantaginea, *Roxb.*
dilatata, *Buch.*
ပဒိုက်ကြီး pa-douk-gyee
sagittata, *Roxb.*

MELANTHACEAE. COLCHICUMWORTS.

Anguillaria, *Brown.*
indica, "

SMILACEAE. SARSAPARILLAS.

Smilax, *Tournef.*
ovalifolia, *Roxb.*
ကုက္ကု ku-ku.
Lirope, *Lour.* (Species ?)
Teta, *Roxb.* "

ROXBURGHIACEAE. ROXBURGHWORTS.

Roxburghia, *Dryand.*

DIOSCOREACEAE. YAMS.

Dioscorea, *Plum.* Yam.
taciculata, *Roxb.* Karen Potatoe. ex.
ကဒွေးဥ ka-dwæ-oo.
globosa, *Roxb.* Large White Yam. ex.
မြောက်ဖြူ myouk-phoo.
alata, *Wild.*
atropurpurea, *Roxb.* Dark-purple Yam.
မြောက်နီ myouk-nee.
crispata, *Roxb.*
မြောက်ကျား myouk-kya.
dæmona, *Roxb.* Wild Yam.
ကွေး kywæ.
glabra, *McClell.*
rubella, "
anguina, "
Dioscorea.
versicolor, *Buch.*
myouk-shen, မြောက်ရှင်
" pwai-toke, " ပွဲတိုင်
twen-souk-myouk, တွင်းစောက်မြောက်
sen-lung-gywot, စင်းလုမ်ကျွတ်
kywæ-kyouk-tha, ကွေးကျောက်သား
ka-dat, ကဒတ်
kwai-taplu, (Sgau.)
nai-ka-hsang-khang-long, (Pwo.)
nwai-so, (Sgau.)

LILIACEÆ. Lilyworts.

Methonica, *Herm.* Gloriosa.
superba, *Lam.*
ဆီဒီးတောက်။ hsee-mee-touk.
Polianthes, *Lin.* Tuberose.
tuberosa, " ex.
နှင်းပင်။ hnen-ben.
Aloe, *Tournef.* (Species?) ex.
မုတ်။ moke.
Drimia, *Jacq.*
lanceœfolia, *Ker.* ex.
Ornithogalum, *Lin.* Star of Bethlehem.
revolutum, *Jacq.* ex.
caudatum, *Ait.* ex.
Allium, *Lin.*
sativum, " Garlic. ex.
ကျက်သွန်ဖြူ။ kyet-thwon-phyoo.
cepa, *Lin.* Common Onion. ex.
ကျက်သွန်နီ။ kyet-thwon-nee.
ascalonicum, *Lin.* Shallot. ex.
ကျက်သွန်နီ။ ?
porrum, " Leek, ex.
တောကျက်သွန်။ tau-kyet-thwon.
Scilla, *Schreb.*
indica, *Roxb.*
ပဒိုင်းကျက်သွန်။ pa-daing-kyet-thwon.
Hemerocallis, *Lin.* Day Lily.
disticha, *D. Don.* ex.
fulva, *Lin.* "
Asparagus, "
officinalis, " Common Asparagus. ex.
acerosus, *Roxb.*
ရှစ်မတက်။ sheet-ma-tet.
Dracæna, *Vandell.* Dragon Tree.
atropurpurea, *Roxb.* ex.
ကွမ်းလင်နက်။ kwon-len-net.
kwon-len-phyoo, ကွမ်းလင်ဖြူ။

COMMELYNACEAE. Spiderworts.

Commelyna, *Dill.*
cœspitosa, *Roxb.*
hsat-lay-khyoung, ဆဋ်လယ်ချောင်း။
ma-gywot, မကျွတ်။

Aneilema, *Brown.*
herbaceum, *Wall.*
Flagellaria, *Lin.*
indica, "
မြောက်ကျိုန်း myouk-kyeing.
Pollia, *Thungb.* P.
Trades cantia.
axillaris, P.
imbricata, "

ALISMACEAE. WATER PLANTAINWORTS.

Alisma, *Lin.* (Species ?)

PANDANACEAE. SCREWPINES.

Pandanus, *Lin.*
odoratissimus, " Fragrant Screwpine. ex.
ဆပ်သွား၊ဆပ်တဖူး၊ hsat-ta-phu.
furcatus, *Roxb.*
tha-bau, ta-gyet, သဘော်၊တကျက်၊
hsat-thwa-gyee, ဆပ်သွားကြီး၊
tau-ta-kyet, တောတကျက်၊
yæ-ta-kyet, ရေတကျက်။
Nipa, *Thunb.*
fruticans, " ex.
ဒန်း *da-ne.*

PISTIACEAE. DUCKWEEDS.

Pistia, *Duckweed.*
stratiotes; *Linn.*

ARACEAE. ARUMWORTS.

Ambrosinia, *Roxb.* (Species ?)
Typhonium, *Schott.*
orixense, "
Amorphophallus, *Bl.*
campanulatus, *Voigt.* Telinga Potatoe. ex.
ဝါး wa.
Colocasia, *Ray.*
antiquorum, *Schott.*
ပိန်း peing.
indica ? *Voigt.*
စေတုံ၊ seet-tung.

odora, *Voigt.* Fragrant Arum.
ဝိမ်မဟောရ။ peing-ma-haw-ya.
koung-gen-peing, ကောင်းကင်ဝိမ်း။
pan-nai-nat, ပန်းနဲ့နတ်။
peing-kyan, ဝိမ်းကျန်၊
" ung, " အုမ်။
" kyoung-khyæ, " ကျောင်ချေး။
" shau, " ရှော
" pau-htwon, " ပေါ်တွန်း။
wet-kyouk-peing, ဝက်ကျောက်ဝိမ်း။

Scindapsus, *Schott.*
officinalis, "
pinnatifida, P.

Pothos, *Lin.*
scandens, "
gigantea,
ငရဲကြီး။ nga-ya-gyee.
lasia, P.

Acorus, *Lin.*
calamus, " Sweet Flag. ex.
လင်းဟေ။ len-hæ.

Arum, *Roxb.*
rapiforme, "

NAJADACEAE. Pondweeds.

Potamogeton, *Lin.*
indicus, *Roxb.*

Spathium, *Lour.*
chinense, "

GRAMINACEAE. Grasses.

Panicum, *Lin.*
jumentosum, *Pers.* Guinea-grass. ex.
nau-ka-thau-hau, (Sgau.)
stalicum ? *Lin.* Millet. ex.
ဆပ်မြီး၊ပြောင်းလယ်ကောက်။ pyoung-lay-kouk.

Paspalum, *Lin.*
loo, လူး။ Paspalum Millet.

Sorghum, *Pers.*
volgare, " Holcus Millet. ex.
ရှင့်မြီး၊ပြောင်။ pyoung. (Holchus Sorghum.)

saccharatum, *Pers.* Sorghum Millet.
ပြောင်း pyoung.
Chrysopogon, *Host.*
acicularis, "
ငှက်မျှစ် gnung-myeet.
Imperata, *Curillo.*
cylindrica, *Beauv.* Thatch Grass.
သက်ကယ်ညင်း thek-kay-nyen.
Saccharum, *Lin.*
officinarum, " Sugar-cane. ex.
ကြံ kyan.
violaceum. Otaheity Cane.
spontaneum, *Lin.* Thatch Grass.
သက်တယ်ကြီး thek-kay-gyee.
la-man-myeet, လမန်မျှစ်
kaing, ကိုင်း
Saccharum.
kyan-mai, ကြံမဲ့ ex.
" men, " မင်း " "
boung-kyan, ဘောင်းကြံ " "
htee-po-ka-hsau-hsa, (Sgau.)
Andropogon, *Lin.*
muricatus, *Retz.* ex.
ပန်းရင်း pan-yen.
Schœnanthus, *Lin.* Lemon Grass. ex.
esculentum, *McClell.*
စပါလင်း sa-ba-len.
ta-yu-khlau-mee-da, (Sgau.)
Aristida, *Lin.*
Sau. "
Anthistiria, " (Species ?)
Zea, " Maize.
Mays, " ex.
ပြောင်းဖူး pyoung-boo.
Coix, *Lin.*
Lacrima, " Job's Tears, ex.
ကလိသီး ka-le-thee.
ကလိပေါက်ပေါက် ka-le-pouk-pouk. Coix Millet.
ka-le-men, ကလိမှင်း
" " shee, " ရှည်
" " theing, " သိန်း

beu-wai-thoo, (Sgau.)
Oryza, *Lin.* Rice.
sativa, " ex.
ကောက်စပါး၊ စပါး၊ sa-ba.
Cynodon, *Rich.*
dactylon, *Pers.* Creeping Panic Grass.
Dactyloctenium, *Willd.*
ægyptiacum, *Beauv.*
Eleusine, *Gartn.*
indica ? "
ဆင်ဝိုမျက်၊ hsen-gno-myeet.
Arundo, *Rox.* Reed.
phoung,* ဖောင်၊
pyoo, ဖြူ၊
kyoo, ကျူ။
lai, လဲ၊
a-lo-kyoo, အလိုကျူ။
Hordeum, *Lin.*
hexastichon, " Barley. ex.
မုယော၊ mu-yau.
Triticum, *Lin.*
vulgare, *Vill.* Wheat. ex.
ဂျုံစပါး၊ gyung-sa-ba.
Poa, *Lin.* Meadow Grass.
(Species ?)
Ratzeburgia, *Kth.*
pulcherrima, "
Bambusa, *Schult.*
spinosa, *Roxb.*
ဝါငချပ်း wa-gna-khyat.
gigantea, *Wall.*
ဝါဇိုး၊ wa-bo.
nana, *Roxb.*
ဖိလောပိနံဝါ၊ pe-lau-pe-nang-wa.
wa-pyouk, ဝါးပျောက်၊
" net, ဝါးနက်။
kyouk-wa, ကျောက်ဝါး၊
gna-tai, ငတဲ့။
wa-pwot-gyee, ဝါးပွတ်ကြီး၊

* The natives often call species of saccharum and arunda by the same names.

Bambusa.

wa-pwot-gnay,	ဝါးပွတ်ငယ်။
ten-wa,	တင်းဝါး။
wa-nway,	ဝါးနွယ်။
wa-swen-net,	ဝါးစွင်းနက်၊
" " phyoo,	ဝါးစွင်းဖြူ၊
kya-lo-wa,	ကျလိုဝါး။
kya-khat-wa,	ကျခတ်ဝါး။
kya-thoung-wa,	ကျသောင်းဝါး။
ten-wa,	တင်းဝါး။
hmyen-wa,	မျှင်ဝါး။
thaik-wa,	သိုက်ဝါး၊
thaik-tu-hmyen-tu-wa,	သိုက်တူမျှင်တူဝါး။
tha-na-wa,	သနဝါး။
kha-yen-wa,	ခရင်းဝါး။
shwae-hmung-wa,	ရွှေမှုံဝါး။
wa-ph-young,	ဝါးဖရောင်း။
wa-men,	ဝါးကင်း။
wa-myet-hsan-kyay,	ဝါးမြက်ဆံကျယ်။
tha-ra-phu-wa,	သရဖူဝါး။
wa-mo-wa,	ဝမိုးဝါး။
wa-tha-phwot,	ဝါးသဖွတ်။
bouk-wa,	ဗောက်ဝါး။
htee-wa,	ထီးဝါး၊
wa-mai	ဝါးမဲ။
wa-thie-shwae,	ဝါးသီရွှေ။
wa-ya,	ဝါးရှား။

Graminaceæ.

myeet-nee,	မြစ်နီ။
pyoung-sa,	ပျောင်းစါး
myeet-ya,	မြစ်ယား။
nau-wee-ko	(Sgau.)
" lwee-khau,	"
nau-ko-thæ-mai,	"
tha-kee-pgæ,	"

CYPERACEAE. Sedges.

Cyperus,	*Lin.*	
pygmæus,	*Vahl.*	
Kyllinga,	*Lin.*	
monocephala,	"	
triceps,	"	
Fimbristylis,	*Vahl.*	
æstivalis,	"	
Hypolytrum,	*Rick.*	
giganteum,	*Wall.*	
Cypereæ,	*Nees.*	
wet-myeet-oo,	ပက်မျှစ်ဥ။	
myeet-kyet-thwon,	မျှစ်ကျက်သွန်။	
tau-kyet-lay-hlee,	တောကျစ်လယ်လှီး။	
hsgai-ka-tho,		(Sgau.)
" the-kee-kho,		"
" o-bo,		"
Scirpeæ,	*Nees.*	
ta-pro,		(Sgau.)

ERIOCAULACEAE. Pipeworts.

Eriocaulon,	*Grownov.*	
Wallichianum,	*Mart.*	

XYRIDACEAE. Xyrids.

Xyris,	*Lin.*	
indica,	"	
pauciflora,	*Willd.*	

BALANOPHORACEA. Cynomoriums.

Balanophora,	*Forst.*	
typhina,	*Wall.*	
gigantea,	"	

CYTINACEÆ. Cistusrapes.

Cytinus,	Species ?	

FERNS.

The following valuable Catalogue of Burmese ferns with the synoptical table, has been furnished by the Rev. C. S. P. Parish, Military Chaplain, Maulmain. He did not give the synonymes, he remarked, lest he should add too much to the size of the book. The synonymy is the great opprobium of natural history. The difficulty in the study of nature is not in what God has made, but in decyphering the illegible characters that man has written on her face. She places us on enchanting ground with hill and dale, dingle and dell, stream and streamlet, and "every tree that is pleasant to the sight and good for food;" but naturalists, by the multiplicity of barbarous names they have heaped on the same object, have turned the whole into "a continent of mud."

A tribe of ferns with the sori continuous on the margin, and easily recognized, Linneus designated *Pteris* or plume, the Greek name for ferns. Modern naturalists, Dutch and English, German and French, have so *improved* on him and on each other that *Pteris* now appears in different books under *eighteen* different names, and to complete the cycle, showing the impertinence of these changes, Sir William Hooker, the most distinguished of living Botanists, has gone back to the old Linnean genus and adopted it in his new work on ferns.

The tree fern which appears on page 443 under Wallich's name of *Polypodium giganteum*, will be found in the following Catalogue under Sir W. Hooker's name of *Alsophila gigantea*; but Moore, more recently refers it to *A. glabra*, and gives a dozen other names by which it is denoted on the pages of various authors. He remarks: "It sometimes becomes difficult to distinguish between *Alsophila* and *Polypodium*." Where there is no natural boundary, why make an artificial one?

The silver fern of page 443 is referred to *Nothochalæna* or *gentea*, that being the systematic name under which it is described in the latest work on ferns to which I had then access; but I since find that Sir W. Hooker refers it to *Cheilanthes argentea*. Moore observes: "*Nothochlæna* has all the habit of *Cheilanthes*, with which some of the species have much affinity."

One of the most common ferns in Burmah, very abundant at the base of the old walls at Toungoo, is the four

eared Pteris, *P. quadriaurita*, easily recognized by each of the lower pair of pinnæ being double so as to suggest two pairs of ears. To the description of this species, Sir W. Hooker devotes a dozen lines of large type, and then adds twelve dozen lines in small type mainly to an exposition of the synonymes.

THE FERN ALLIANCE.

I.

Filicales.—Spore cases dorsal or marginal, one-celled.

Order.

Spore cases with a jointed ring, ... Polypodiaceæ.
Spore cases without a jointed ring,
Fructification dorsal, vernation circinate .. Marattiaceæ.
Fructification marginal, vernation straight, Ophioglossaceæ.

II.

Lycopodale -Spore cases radical, or petiolar
or axil e or many celled.
Spore cas axillary; one three celled, ... Lycopodiaceæ.
Spore cases radical, or petiolar, one four, or
many celled, ... Marsiliaceæ.

FILICALES.

Order 1. POLYPODIACEÆ. *Tribe.*

I | Spore cases valvate, ... Osmundineæ.
II | Spore cases not valvate.
A | Ring complete.
1 | at the *top* of the spore case, ... Schizœineæ.
2 | round the *centre* of the spore case.
† | Sori dorsal, fronds opaque, ... Gleichenineæ.
†† | Sori marginal, fronds pellucid, ... Irichomanineæ.
B | Ring not complete, but nearly so.
1 | Vertical (spore cases usually stalked,) .. Polyponineæ.
2 | Not vertical, *eccentric*, (spore cases sessile or nearly so.)
† | Sporecases many, compressed, ring narrow, ... Cyatheineæ.
†† | Spore cases few, gibbous ring, broad. Matonineæ.
C | Ring rudimentary (annual aquatic plants). Ceratoptendineæ.

Tribe 1. POLYPODINEÆ. *Group.*

I | Receptacles occupying the whole under surface of the frond, ... Achrosticheæ.
II | Receptacles *not so*, but in large patches of a definite form, ... Platycerieæ.
III | Receptacles confined to certain determinate parts of the veins, ...

A | Sori transverse to veins, paralled (or nearly) with midrib or margin.* — *Group.*

1 | Receptacles on or near to midrib. (*Sometimes* marginal by contraction of the frond), linear or oblong.

† | Sori with an indusium, ... Lomarieæ.

†† | Sori without an indusium, ... Pleurogrammeæ.

2 | Receptacles marginal, or medial, distant from midrib, (usually linear, sometimes punctiform).

† | Sori with indusium.

‖ | Indusium bursting along its *outward* margin, ... Lindsœeæ.

‖ | Indusium bursting along *inward* margin,

= | Spore cases attached to *under surface of Indusium*, Adianteæ.

= | Spore cases attached to the *surface of frond.*

× | Punctiform, ... Cheilantheæ.

× | Linear, ... Pterideæ.

‖ Marginal, ... Vittarieæ.

‖ Not marginal, but nearly so, .. Toenitideæ.

3 | Receptacles short, tranverse, or arcuate on veins.

† | With indusium, ... Woodwardieæ.

†† | Without indusium, ... Meniscieæ.

B | Sori parallel with venation, oblique to midrib.

1 | With indusium,

† | Lateral on the veins (indusium single,) .... Asplenieæ.

†† | Dorsal on the veins (indusium double,) .... Didymochloereæ.

2 | Without indusium.

† | Receptacles linear, an anastomising, ... Hemionitideæ.

†† | Receptacles linear, simple or forked, ... Gymnogrammeæ.

††† | Receptacles contiguous, at length confluent, ... Platylomeæ.

C | Sori punctiform, (rarely appearing otherwise by confluence.)

1 Sori punctiform, (Indm. superior, normal.)

† | Indusium reniform or peltate, attached by sinus or centre, margins free, ... Aspidieæ.

†† | Indusium roundish, attached by its base transversely, margins free .. Cystopterideæ.

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* Rarely punctiform.

	†††	Indusium, roundish or oblong, adherent at the base and margin (cup-shaped.)..... Davallieae.
2		Sori with indusium (Indm. abnormal, inferior,)
		Indusium adherent to margin of frond, Dicksonieae.
		Indusium not adherent to margin of frond,..... Peranemeae.
3		Sori without indusium, ... Polypodieae.

TRIBE 2. CYATHEINEÆ.

A.		Sori with indusia (but abnormal, inferior) on an elevated receptacle.
	1	Fructification dorsal ..... Cytheæ.
	2	Fructif: not dorsal (involucres cup-shaped, ...Thyrsopterideæ.
B.		Sori without indusium, on an elevated receptacle, ... Alsophileæ.

TRIBE 3. MATONINEÆ.

One genus, *Matonia*—a rigid fern, distinguished by its umbonate indusium.

TRIBE 4. GLEICHENINEÆ.

Two genera—Platyzoma and Gleichenia.

TRIBE 5. TRICHOMANINEÆ.

Trichomanes and Hymenophyllum.

TRIBE 6. SCHIZŒINEÆ.

1	Spore cases attached laterally,..... Lygodieæ.
2	Spore cases attached basally,..... Schizæeæ.

TRIBE 7. CERATOPTERIDINEÆ.

One genus—Ceratopteris.

TRIBE 8. OSMUNDINEÆ.

Two genera—Osmunda and Todea.

ORDER 2. MARATTIACEÆ.

		Tribes.
A.		Sori distinct.
	1	oblong,..... Marattineæ.
	2	circular..... Kaulfussineæ.
B.		Sori not distinct, (cornate) ..... Danœineæ.

TRIBE 1. MARATTINEÆ *Groups.*

1	Spore cases free, ... Angropterideæ.
2	Spore cases concrete, ... Marattieæ.

ORDER 3. OPHIOGLOSSACEÆ.

No subdivision of this order and only one genus—Ophioglossum.

LYCOPODALES.

Order 4. LYCOPODIACEÆ.

		Groups.
I	Stemless plants with radical leaves, ..	Phylloglosseae.
II	Stems leafy, ...	Lycopodieae.

Order 5. MARSILIACEÆ.

		Groups.
I	Spore cases one celled.	
	1 radical, axillary at base of leaves.	Isoëteae.
	2 clustered on short leafless branches.	Salvineae.
II	Spore cases 2-4 celled radical,	Pilularieae.
III	Spore cases many celled, radical or petiolar.	Marsilieae.

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FILICALES—POLYPODIACEÆ.

Tribe 1.—POLYPODINEÆ.

Group.—Achrosticheæ.

Polybotrya, *Humbolt & Bompland.*
setosa; common on sandstone hills about *Maulmain*, also on granite at *Amherst* and *Beloo-gewn.*
marginata.
appendiculata, *J. Sm.*
Hamiltoniana.

Pæcilopteris, *Presl.*
flagellifera. On the ground in wet places, deep jungles.

Achrostichum, *Lin.*
aureum. In swampy places where water is brackish.—*Amherst.*

Photinopteris, *J. Smith.*
horsfieldii? *J. Sm.* Mountainous districts.

Group.—Platycerieæ.

Platycerium, *Desvaux.*
Wallichii, *Hook*; every where on trees throughout the Provinces.
biforme, *Blume.* Mergui.

Jenkinsia, *Hooker.*
undulata, *Hook*:—local; wet jungles, abundant about old Pagodas. Tavoy, another species, not named.

Group—Lomarieæ.

Lomaria, *Willd.*
scandens; abundant at river sides and in wet places in jungles.

Blechnum, *Lin.*
orientale, *Lin.* Cliff at Amherst, rather scarce.

Group—PLEUROGRAMMEÆ.

Hymenolepis, *Kaulfuss.*
spicata, *Presl.* On betel nut trees, island called Madremacan, Mergui.
Gymnopteris, *Bernhardi.*
axillaris, *Presl.* on trees, wet jungles, rare in fructification.

Group.—TOENITIDEÆ.

Toenitis, *Wild.*
Blechnoides, *Sw.* Damp jungles but local :—rather plentiful about *Amherst.*
Drymoglossum, *Presl.*
piloseiloides, *Pr.* Common on trees at Tavoy, Mergui and elsewhere.
A second species ?

Group.—VITTARIEÆ.

Vittaria, *Lin.*
lineata, *J. Sm.* On trees about Maulmain, and elsewhere.

Group.—LINDSŒEÆ.

Lindsœa, *Dryander.*
Lobbiana, *Hook.* Madremacan, Mergui, on the ground.
lanuginosa, *Wall.* Tavoy town, on trees.
cultrata, *Sw.* Mergui.
Schizoloma, *Gaudichaud.*
ensifolium, *J. Sm.* Sandstone hills, about Maulmain.

Group.—ADIANTEÆ.

Adiantum, *Lin.*
Parishii, *Hook.* On the top of a limestone rock, called Twakabin, near Maulmain ; alt. 2000 feet.
lunulatum, *Brm :* Everywhere.
Capillus Veneris, *Lin.* On limestone rocks in the *Megatha* river.

Group—CHEILANTHEÆ.

Cheilanthes.
faginosa, *Klfs.* 2 varieties, one on Twakabin, a limestone rock, at an elevation of 2000 ft. above the sea ; another, at the level of the sea, on primitive rocks, Beloo-gewn.
varians, *Hook,* } Common on banks, Maulmain.
tenuifolia, *Sw.* }
fragilis, *Hook.* Limestone rocks, near Maulmain.

Group—PTERIDEÆ.

Onychium, *Kaulf.*
auratum, *Klfs.* Occasionally on pagodas ; abundant in old toung-yas, or jungle clearings.

Pteris, *Lin.*

aquilina, *Lin.* Mountains, Molee, ft. Nwa-labo. In the district of "Kiouk-Koung," east of the "3 Pagodas." as low as 1000 ft. elevation.

aurita, *Bl.* Common.

2-aurita, *Bl.* Common about Maulmain and elsewhere.

longifolia, *Lin.* Very common on wells and old pagodas.

longipinnula, *Wall.* Jungles; not abundant.

pellucida, *Pr.* Jungles, rather rare, Amherst.

ludens, *Wall.* Limestone rocks.

cretica, *Linn.* Amherst, and elsewhere in jungles.

Nemoralis, *Willd.* Rebigue.

Group—MENISCEÆ.

Meniscium, *Schreb.*

Species? Attaran.

Group—ASPLENIEÆ.

Asplenium, *Lin.*

nitidum; on trees in wet jungles.

resectum; Madremacan, Mergui, and near rivulets, among hills, commonly.

erectum, (or allied).

falcatum; on trees, Tavoy and Maulmain.

heterocarpum, *Wall.* Twa-kabin.

indus-aris; common on trees in wet jungles throughout the provinces.

Diplazium, *Sw.*

polymorphum,
tomentosum, } deep jungles.

Diplazium,
macrophyllum,
sylvatica, } *Desvaux.*

Athyrium, *Roth.*

pentagonum, *Moore;* limestone rocks near Maulmain.

Group.—HEMIONITIDEÆ.

Antrophyum, *Klfs.*

reticulatum; on rocks and stones in wet jungles.

Hemionitis, *Lin.*

cordata, *Roxb.* Fort at Toungoo.

Group.—GYMNOGRAMMEÆ.

Grammitis, *Sw.*

elongata; Madremacan, Mergui.

Digrammaria, *Pr.*

esculenta; swampy places in jungles, "Tee-yang."

Loxogromma, *Bl.*

Group.—POLYPODIEÆ.

Polypodium contiguum, *Wall.* Mergui.

Goniopteri,* *Pr.*
lineata
urophylla, *Pr.* } jungles, in wet places, common.
Dictyopteris, *Pr.*
macrodonta, *Pr.* wet jungles, rare.
Niphobolus, *Klfs.*
acrostichoides, *Wall.* common on trees.
costatus. Tavoy.
Sphœsocephalus. Mædremacan, Mergui.
Niphobolus.
gardneri. Maulmain and Tavoy, on trees.
Pleopeltis, one species.
Drynaria. *Borg.*
quercifolia, *J. Sm.* On nearly every old tree in the Provinces.
coronans; apparently very local. Hills near Toungoo.—Abundant in the Siamese Province of Kiouk-Koung.
briodes; trees, Maulmain.
longissima, *J. Sm.*
hemionitidea.
normalis.
sinuosa.

Group.—ASPIDIEÆ.

Polystichum, *Roth.*
vestitum. Nwalabo, near Tavoy, alt. 4500 feet.
preslianum.
Sagenia, *Pr.*
coadanata, *J. Sm.* About Maulmain, on banks, common.
Hippocrepis, *Pr.* Jungles, rather rare.
variolata. *Wall.*
Nephrodium, *Rich.*
molle. *R. Br.* jungles, Toungwine near Maulmain.
unitum, *Bory.*
terminans.
proliferum (?) Abundant above the water line of our rivers, high up.
javanicum, *Hook.* Dense jungles.
Lastræa, *Bory.*
ericarpa. Twakabin, 2000 feet.
ciliata. Limestone rocks.
pentagona.
fateiloba.
atrata? Mergui.
corsifolia, *Wall.* (?)
macrocarpa, *Wall.* Twakabin 2000 feet.
Oleandra, cancarilles.

* Goniopteris has always been placed among non-indusiate ferns—but it has an indusium, though small, and soon withering. C. P.

Wallichii, *Pr.* Toungwine, Maulmain.—Madremacan, Mergui.

Nephrolepis, *Schott.*

tuberosa, *Pr.* On trees, Maulmain.

hirsutala, *Pr.* Jungles, not common.

exaltata (?) *Schott?* Martaban, old fort wall.

Group.—DAVALLIEÆ.

Davallia, *Sm.*

elegans, } *Sw.* abundant on palmyra trees, in the
solida, } rains.

Belangeri, *Bory.* Trees, common.

bullata, *Wall.* Mergui.

decussens, *Hook.* Near top of Nwa-labo, Tavoy—4000 ft.

Khasigana, *Hook* Tavoy, jungles at the foot of Nwa-labo.

polypodeoides. Abundant at Dongyan Twakabin; also on Mount Burney, Tavoy.

immersa, *Wall.* Donne-Toung.

Group.—DICKSONIEÆ.

Cibotium, *Klp.*

glaucescens, *Kze.* Near a fine waterfall on the road from Tavoy to the foot of Nwalabo.

Group.—PARANEMEÆ.

Diacalpe, *Bl.*

aspidioides, *Bl.* Top of Nwalabo, Tavoy, on the ground.

TRIBE 2. CYATHEINEÆ.

Group.—ALSOPHILEAE.

Alsophila.

gigantea (?) Abundant in all wet jungles, but never seen by me with a true stipes.

Another species near Natyè, on the ascent to Nwalabo.

TRIBE 4. GLEICHENINEÆ.

Gleichenia, *Sm.*

dichotoma, *Hook.* Cliff, Amherst; Mergui, Kalween road.

TRIBE 5. TRICHOMANINEÆ.

Trichomanes, *Lin.*

Filicula, *Bory.* On small trees in wet jungles.

Jaranicum, *Bl.* Near hill streams. Madremacan, Mergui; Ting-gike, near Martaban.

A third very smell species, allied to T. Henzaiensis, *Parish.*

Hymenophyllum, *Sm.*

polymorphum, *Hook.* On rocks and stones, wet jungles.

TRIBE 6. SCHIZŒINEÆ.

Group.—LYGODIEAE.

Lygodium, *Sw.*

scandens, *Sw.* Very common, especially about Maulmain. two more species.

Group.—SCHIZŒEAE.

Schizœa, *Sm.*
pennula, *Hook.* Top of Madremacan, Mergui.

TRIBE 7. CERATOPTERIDINEÆ.

Ceratopteris, *Brongt.*
thalictroides, *Brongt.* Annual, abundant in my compound during the rains.

TRIBE 8. OSMUNDINEÆ.

Osmunda, *Lin.*
javanica, *Bl.* Near waterfall, Tavoy.

ORDER 2. MARATTIACEÆ. TRIBE MARATTINEAE.

Group.—ANGIOPTERIDEAE.

Angiopteris, *Hoffm.*
evecta, *Hoffm.* Wet jungles, Toungwine, near Maulmain.

ORDER 3. OPHIOGLOSSACEÆ.

Ophioglossum pendulum, *Lin.* Rare, Tavoy, trees, Hondraw river.

LYCOPODALES.—LYCOPODIACEÆ.

LYCOPODIEAE.

Lycopodium, *Lin.*
claratum, *Lin.*
carnuun, *Lin.*
phlegmaria, *Lin.*
salulifolium. Tavoy, Mergui, Amherst.
Lycopodium ulicifolium, *Vent.*
Selaginella. *Pal. de Beauv.*

Belangeri. Common.	S. atrovireus ?
flabellata.	chrysocaulon ?
caulescens ?	Willdenovii, and others.
pentagona ?	

Salvinia being omitted in Mr. Parish's catalogue, it is here added.

MARSILEACEÆ. PEPPERWORTS.

SALVINIEAE.

Salvinia, *Mich.*
cucullata, *Roxb.*

———o———

JUNGERMANNIACEÆ. SCALE MOSSES.

Jungermania.
hirtella, *Weber.*
Plagiochila.
Nepalensis, *Ldbg.*
Sendtnera.
juniperina, *Nees.*

Physiotium.
sphagnoides, *Hook.*
Ptychanthus.
striatus, *Nees.*
Lejunia.
adplanata, *Nees.*

BRYACEÆ. URN MOSSES.

"The mosses," writes Mr. Parish with the following list, "have been so turned topsy-turvy by Mr. Mitten, who is thought to be the best Bryologist, that all the old genera, and old species, go for nothing. I really don't know where I am with the mosses now, and I thought once I knew something about them. I have just received 'Musci Indiæ Orientale,' an enumeration of mosses of the East Indies, published in the Linnean Transactions, and out of that I have taken the following. I suppose it is best to give the latest new names, if possible."

Garkea, (Dicranum, *Hook.*) *C. Muller.*
phascoides. On dry banks, Maulmain.
Leucoloma, *Hook.*
Taylori, *Schw.* On trees, in jungle.
tenerum, *Mitten.* "
Octoblepharum.
albidum. *Hedwig.* Common on trees about Maulmain.
Dicranum, (Camphylophus.)
subluteum, *Mitten.* Nwalabo, Tavoy.
Calymperes.
semi-liberum. *Mitten.* Trees, Tavoy.
Macromitrium.
Nepalense, *Schw.* Trees, Tavoy.
calymperoidem, *Mit.* "
(Schlothermia) sulcata, *Brid.* Moolee, on trees.
Funaria.
hygrometrica, *Dill.* In Siamese province of Kiouk-koung, on ground east of 3 pagodas.
Tayloria (Octoblepharum.)
Indica, (serratum,) *Hook.* On rocks in dense jungle.
Bryum.
coranatum, *Schw.* On old brick-work, Maulmain.
Hypnum.
Tavoyense, *Hook.* Trees all over the Provinces.
Wightii, *Mitten.* " " "
Meteorium.
Wightii, *Mitten.* Pendulous from trees in dense jungles.
Squarrosum, *Hook.* " " " "

Stereodon (Ptergonium)
juliformis, *Hook.* Trees and pagodas, Maulmain.
inflexus. " " "
(Hypnum) compressifolium, *Mitten.* " "
" rostratus, *Griff.* " "
" lignicola, *Mitten.* " "
Neckera (Omalia.)
flabellata, *Smith.* Trees in jungle.
Prishiana, *Mitten.* "
uroclada, " "
Leskea (Hypnum.)
cymbifolia. *Dozy & Molk.* On the ground.
investis, *Mitten.* On rocks, Maulmain.
Fissens (Dicranum.)
areolatus, *Griff.* Nwalabo.
(polypodioides.)
bryoides. On the ground, Maulmain.
Rhizogonium, (Minium.)
spiniforme, *Bruch.* Nwalabo.

The Burmese call all the mosses ရေညှိ။ *yæ hnye.*

———o———

FUNGACEÆ. Mushrooms.

Agaricus, *Lin.*
hmo, မှိုး သင်ကန်မှိုး။ then-gan-hmo.
Agaricini.
than-hmo, သံမှိုး Vermifuge Fungus.
Phallus, *Mich.*
ku-thwai-la, (Sgau.)
Coleus, *Cav.* P.

———o———

LICHENACEÆ. Lichens.

The lichens have never been examined. I met with one remarkable species pendulous from pines and teak trees in the Red Karen country, which Dr. Thompson, of the Botanical Gardens, refers to the genus *resnea*, and another species common on *Casuréna* trees, Mr. Parish writes me is *ranalina.*

ALGACEÆ. Sea-weeds.

Plocaria, *Nees.*
candida, *Lindl.* Edible moss.
ကျောက်ပွင့်။ kyouk-pwen.

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In addition to the remarks on page 641, it may be observed that Bamau, or Baumau, frequently occurs in old Bghai poetry as the name of a large Burmese city, near which their ancestors formerly dwelt, but of which the present generation has no knowledge. One of their songs says:

"Go buy a large cleaver in Baumau,
Return buy a large axe in Baumau."

An old myth represents Ywa, when about to die, sending the Tupaia to call the Burmese from Baumau to receive dying gifts. They reached his couch before the Karens who had also been sent for through the monkey tiger, and received horses and elephants, oxen and buffaloes, ability to raise three crops of rice a year, and skill to weave cloth as beautifully variegated as the serpent's skin. After receiving their gifts, the legend states they took their horses, elephants and cattle and returned to Baumau. This proves decisively that the Bghais were formerly located in the vicinity of Bamau.

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In continuation of page 75, it may be added, the Red Karens, according to their traditions, came down from the vicinity of Ava first to Toungoo with the Bghais, whom they recognize as their brethren, but were driven east to their present locality by the Burmese; and hence obtained the name of *Bghai-mu-htay*, or Eastern Bghais.

The Red Karen traditions are sprinkled with scriptural expressions, like the traditions of the other tribes, but some of them have not been met with before. For instance—after stating that God was before all things, it is said he formed first the heavens as a dwelling place for himself, and then he created the earth, but the earth was mixed with water and there was no solid ground. Then "God divided the land from the water, and made the water

to gather itself together in one place, in the great ocean, when the dry land appeared."

Again: "The ancients say, there was once a man who held converse with the dead; and he directed the soul of the dead man to follow the road that he pointed out to him, saying, 'Pursue this road till you find it divide into two. At the forks of the road you will find a book. Open it and observe what it says. When you continue your journey, follow the road that branches off to the right. Go not to the left. Though the road is narrow there is unalloyed happiness at the end. The road on the left, though large and wide, has no happiness at the end; but on the contrary ends in unmixed wretchedness and suffering'."

Catarans and savages as the Red Karens have hitherto been characterized, they seem to have as good a knowledge of their own wayward selves, as many people of much higher pretensions. One of their myths says: "Once on a time, God called all nations to him to learn to read; and all went and studied. The Karens, however, were lazy, never got their first lesson, and soon ran away and hid themselves in the forests. When the other nations were returning home, having acquired ability to read and were carrying away their books, the Karens intercepted them in the road, and seeing the books asked for one, but were refused with the remark, 'go to God and ask him for yourselves.' So they went, and said, 'O Lord give us something.' God replied, 'I wished to make you Karens great and wealthy; but when I said you should be rich and great, you answered, 'No, no, we will not be rich, we prefer to be poor, to be poor.' When I said 'Be it it so, you shall be poor;' then you replied, 'No, no. we want to be rich.' When I would give you life, you cried, 'No, no. We will die, we will die'."

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* "This is the second new species of wood Partridge (says Maj. Tickell) I have been fortunate enough to discover in Tenasserim. (The first was sent to the museum As. Soc. in 1855 as *Arboricola brunneopectus*.) It appears tolerably numerous; but as far as my observations go, is entirely confined to the forests on the banks of the Zummee river. Unlike its known congeners, it avoids mountains, and inhabits low though not humid jungles, where the ground merely undulates or rises into hillocks. Like the rest of its tribe, it is difficult to flush, and runs with great rapidity, jumping adroitly over obstacles, and diving into impenetrable thickets for security. Early in the morning these birds come out on the pathway, scratching about among the Elephants' dung, and turning over the dead leaves, for insects. They do not appear to have any crow or call, though during the pairing season this may not be the case.

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* "Came across three of those singular birds *Corydon Sumatranus*. They are as stupid nearly as boobies or noddies. One that I shot at and missed, remained quietly till I loaded again and killed, the other two sitting looking on." *Tickell.*

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* The Pegu crow, seen about towns is a "blace race," says Mr. Blyth or *Corvus splendens.*

† "In the evening saw a specimen of that superb bird *Eurostopodus cervinicceps* high in the air. It has much the flight of our fern owl or goat sucker, but on a grander scale." *Tickell.*

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* Shot a specimen of that beautiful bird *Psilorhinus Sinensis*. There were three of them, and I have never seen them so bold. Generally this bird is as difficult to approach as our Magpie in England. *Psilorhinus flavirostris*, which is the well known "blue Magpie" of Darjeeling, has a chatter precisely like that of the British Magpie; while its congener *Sinensis*, which scarcely differs from the other in plumage, has a soft wailing whistle like the note of some birds of prey.—*Tickell.*

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* "A bevy of the *Rollulus cristatus*, a singular genus of quail procurable occasionally at Mergui." Tickell. Blyth makes *Rollus* a genus of Wood Partridges.

† "The only specimen seen, sitting on the skirt of a dense thicket, close to a small blind brook. Quiet and still, without the vibratile motion of the tail habitual to all the known Redstarts. But in its conformation, it is undoubtedly a Redstart. *Tickell.*

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* "This is the third new species of the genus I have discovered in Tenasserim. The other two were sent by me to the Society (through Mr. Blyth) in 1855, and named by that gentleman *T. brevicaudatus* and *T. crispifrons*. The latter species with its large tail is rather an aberrant form, if retainable in the genus." *Tickell.*

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Since the work was printed off Mr. Blyth has published a Report of Tenasserim and Sitang fishes furnished him by Major Berdmore, and the names of the new genera and species created for them have been introduced into the index.

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* Mr. Blyth formerly described this fish as *systomus microlepis*, but now as *Osteobrama microlepis*. Of the same genus he has from the Tenasserim Provinces "*O. cotis Abramis cotis*, Mc. Clell. *Cyprinus cotis*, B. H. *Leuciscus alfreolianus*, (?) Val."

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*At Toungoo, a male ricket of this genus is common, easily recognized by the long wings and wing covers being rolled up at their extremities, when at rest, into a spiral coil on the back.

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" *Atkinsoni.*
Tickelli.
Phayrei.
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" *Megalostoma gravidum* is merely the adult shell of *Otopoma blennus.*" *Theobald.*

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In the Journal A. S. Bengal, Mr. Theobald writes: "There appear to be two species of *streptaxis* at Maulmain, besides the new one just received by Mr. Benson."

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Mr. Parish lately sent specimens of our *Antiaris* to Dr. Thomson, who pronounced it to be *A. toxicaria*, the true Bohun Upas; but the leaves are certainly not "ovate," as that species is described by Lindley.

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* This is one of the Budhist sacred trees that I have not seen. Turnour calls it *Buchanania latifolia.*

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ဟိင်ကု၊	498
ဟင်းရွက်ဝဝပါး၊	464

CORRIGENDA.

The distance of the Author from the press, precluded the possibility of his correcting the proofs; and from obscurity in the manuscript, the spelling of words has been occasionally mistaken. Still the errors are not so numerous as in the circumstances might have been expected. The following have been noted.*

Page	*for*	*read*
1	fruit	frost.
2	paripatetic,	peripatetic.
"	seas,	teas.
"	wood,	woad
17	Salung Island,	Salung Islands.
62	Dama,	Ba-ma.
64	He pas,	He was.
68	Yagoung,	Tagoung.
70	non-Asian,	non-Arian.
88	according localities,	according to different localties.
89	melan-orrhae,	malanorrheae.
90	mountain,	mountains.
92	Kay-khen,	Kay-kheu.
98	Koomwees,	Koommees.
"	Kyans, (twice)	Kyaus.
106	erase "The Karens believe that the spirits of the dead are ever abroad on the earth." It is a repetition of a previous line.	
	for	*read*
110	equivalent: to	equivalent to.
121	passum (twice)	possum.
125	thoted	thated.
128	Therema, Thauka	Theremathauka.
"	လူ	a double ဝ (double *dd.*)
148	erase the last 15 lines on this page, which are an exact duplicate of the 15 next preceding.	
	for	*read*
150	atupaia,	a tupaia.
"	sorox,	sorex.
"	pygmaeue,	pygmaeus.
151	Talpalucura,	Talpa leucura.
155	reucotis,	leucotis.
158	Felis domestica,	Felis chaus.
159	Felis chaus,	Felis domestica.
161	longicandatus,	logicaudatus.
162	seiuroptera,	sciuroptera.
164	Histrix,	Hystrix.
166	in the article "Wild Hog," read, "Like the hog of the Andamans, *Sus* Andamanensis"; and begin a new line with *Sus indicus.*	
	for	*read*
171	Hyelophus,	Hyelaphus.
"	rusu,	rusa.
177	bimaonlatus,	bimaculatus.
178	Psittaca,	Psittacus.
"	steptophoros,	streptophoros.
"	flavicellaris,	flavicollaris.
179	alandarius,	alaudarius.
"	gleds,	gledes.
180	interstinetus,	interstinctus.
181	Lepidogeys,	Lepidogenys.
"	caeius,	caecius.
183	rufitinetus,	rufitinctus.
"	linoetus,	limnoetus.
"	ကြတ်မ	ကြက်မ
184	punetatus,	punctatus.
186	vultus,	vultur.
"	tenniceps,	tenuiceps.
"	teunirostris,	tenuirostris.
"	Liviticus,	Leviticus.
187	Jurnia,	Surnia.
"	Keputa, (twice)	Ketupa.
188	Brachyurus,	Brachytous.
189	sineuse,	sinense.
"	Broadfoot,	Berdmore.
"	pusarau,	pasaran.
190	subrufiallis,	subruficollis.
191	Hulcyon,	Halcyon.
"	Haleyon,	Halcyon.
"	ceyle,	ceryle.
193	uvica,	urica.
"	ထောက်	တောက်

* The italics, &c. have been omitted in the Corrigenda.

Page	for	read
193	caneute,	canente.
195	Piccus,	Picus.
"	indiens,	indicus.
196	caerulens,	caeruleus.
"	Duvancelei,	Duvaucelei.
"	mieropterus,	micropterus.
197	tunuirostris,	tenuirostris.
"	chrysococyx,	chrysococcyx.
"	chaleites,	chalcites.
198	coculus,	cuculus.
"	zauclostomus,	zanclostomus.
"	purrhopterus,	pyrhopterus.
200	wacrourus,	macrourus.
"	ပြန်သွား	ပြန်လွှား
204	gorrulax,	garrulax.
207	တောင်	သောင်
209	Deudronanthus,	Dendronanthus.
"	Nemoricla,	Nemoricola.
210	erase သမ္ဗတ်လွယ်။	
"	glass,	grass.
211	PALLORNEUM,	Pellorneum.
212	representatives,	numerous representatives.
213	Shrikes,	Shrike.
"	Teprodornis,	Tephrodornis.
"	Teuthaca,	Tenthaca.
214	keronla,	keroula,
215	warginata,	marginata.
217	Dendrophia,	Dendrophila.
"	melanaptera,	melanoptera.
"	Phanicornis,	Phoenicornis.
218	Occhromalus,	Ochromalus.
220	Diocrus,	Dicrurus.
"	tedirostris,	tectirostris.
221	Leucocerea,	Leucocerca.
222	Psavoides,	Psaroides.
227	Ambayna,	Amboyna.
232	aurititus,	auritus.
"	charadeius,	charadrius.
"	Saeciophorus,	Sarciophorus.
"	Chadrius,	Charadrius.
"	Goensis,	Goënsis.
233	chadrius,(twice)	charadrius.
"	Charadicus,	charadrius.
"	suronicus,	curonicus.
234	tennirostris,	tenuirostris.
235	naenia,	naevia.
239	occitans,	oscitans.
"	tyconia,	ciconia.
241	plavicollis,	flavicollis.
242	Nufescens,	rufescens.
"	Fusea,	Fusca.
243	puilata,	pullata.
"	Brunicephalus,	Brunnicephalus
245	peroenicurus,	phoenicurus.
246	sinensis,	sinensis.
"	lencogaster,	leucogaster.
"	Tlotus,	Plotus.
"	Teel,	Teal.
248	ngroca,	nyroca.
251	Chauda, (thrice)	Chanda.
"	nalula,	nalua.
"	Ambasis,	Ambassis.
"	ponacentrus,	pomacentrus.
252	Pythonees,	Pythoness.
254	cepnalotus,	cephalotus.
256	caphalopholis,	cephalopholis.
258	dories,	dorees.
259	matecembalus,	mastacembalus
261	hermannian,	hermannien.
"	capola,	cepola.
262	sustomus,	systomus.
"	cyprimus,	cyprinus.
"	cirrinus,	cirrhinus.
263	"	"
266	Orcinus,	Oreinus.
269	ရွတ်	ရွက်။
272	opserius,	opsarius.
278	Miiled,	Mailed.
280	cavadius,	cavasius.
285	လိပ်ကျောက်	လိပ်ကျောက်။
292	Phayree,	Phayrei.
293	Chistudo,	Cistudo.
295	Ceychelle,	Seychelle.
296	Gaviel,	Gavial.
298	homalocephalum.	homolocephalum.
303	Lopayrus,	Lophyrus.
305	Ophisep,	Ophiseps.
307	Aspidoclonian,	Aspidoclonion.
"	Aspidoclanion,	"
311	erothrurus,	erythrurus.
"	colubar,	coluber.
315	Irredescent,	Irridescent.
318	persinus,	prasinus.
"	Brouse,(twice)	Bronse.
318	fescens,	rubescens.
320	"*Zebra tropinonotus*" should be in capitals, heading the paragraph that follows.	
322	Lunceus,	Junceus.
324	ပါ	ဖါ။
325	Hula,	Hyla.
"	Engyotoma,	Engyostoma.
327	brouse,	bronse.
328	Dyiiscus,	Dytiscus.
330	stercoraius,	stercorarius.
334	papory,	papery.
238	carculionidae,	curculionidae.

Page	for	read
340	Longicomes,	Longicornes.
"	Cassida,	Cassidae.
344	from of a circle,	form of a circle
"	seutelliform,	scutelliform.
359	scutolleridae,	scutelleridae.
361	glassina,	glossina.
366	Cyclostona,	Cyclostoma.
372	Malania,	Melania.
373	cineta,	cyncta.
376	Hinna,	Pinna.
"	Dreinnia,	Dreissina.
377	ကြောင်	ကြောက်။
378	sanguino laria,	sanguinolaria.
379	turgidy,	turgida.
382	solorium,	solarium.
386	Ovalum,	Ovolum.
390	လမ်း	ကမ်း။
394	Pulmon grade,	Pulmonigrade.
397	this collection,	his collections
399	mass,	moss.
"	fatality,	mortality.
400	fiourishing,	flourishing.
403	ဝံကား	စံကား။
"	Maulmainese,	Maulmainense.
408	အနန်းမ	အနန်းဖို
410	ဝလပ်	စလပ်။
"	Rosa,	Rose.
424	Cicas,	Cycas.
426	poludosa,	paludosa.
430	tribe,	tube.
432	shrysanthemum,	chrysanthemum.
439	fifteen or more,	thirty or more.
441	Balbo phyllum?	Dendrobium?
442	gendorum,	geodorum.
"	1839,	1849.
444	vittania,	vittaria.
445	Toenis,	Toenitis.
"	ophi glassum,	ophiglossum.
446	elsnea,	usnea.
447	patatoe,	potato.
448	မမန်	မရန်။
451	sapota,	sapida.
452	တမ္ဆတ်	တပ္ပက်။
456	Rhaspberry.	Raspberry.
"	Wortelberry	Whortelberry
461	pyros,	pyrus.
463	castamea,	castanea.
"	ဟိန္ဒုက	တိန္ဒုက။
465	ဝါ	ဝ။

Page	for	read
366	ပမ်း	ပိမ်။
468	ရှစ်မတက်	ရှင်မတက်။
469	lepidum,	lepidium.
475	oriza,	oryza.
483	that grows six,	that grows from six.
"	cum petiolo poll. longa,	cum petiolo 9 poll. longa.
494	Bæl, (twice,)	Baël.
496	မ္ဆတ်	စမ္ဆတ်။
"	စိယာ	ဇိယာ။
"	Sanscritt,	Sanscrit.
"	Aeorus,	Acorus.
506	jaggry,	jaggery.
509	mohis,	mollis.
510	ပြည။	ပြည်။
511	တိနညက်	တိန်းညက်။
527	vaneria,	vateria.
529	acia,	acacia.
"	May-ra,	May-za.
531	Sudra's,	Indra's.
535	Malicocca,	Melicocca.
541	တောင်ပိနဲ	တောင်ပိန်းနဲ။
"	coreya,	careya.
541	တောင်ဝံကား	တောင်စံကား။
547	state,	strike.
549	cilicum,	silicum.
"	cilicious,	silicious.
553	lies,	lie.
561	bumamie,	bummie.
563	ဟံပဒါ	ဟံသပဒါ။
571	tugstate,	tungstate.
573	ဝုလဲ	ပုလဲ။
576	ember,	amber.
578	ceylantie,	ceylanite.
579	ငှတ်ခါး	ငှက်ခါး။
"	helietrope,	heliotrope.
580	မြိုင်စိန်	မြိုင်စိန်။
582	Helietrope,	Heliotrope.
"	clearages,	cleavages.
583	ဂေါ်ရတ်	ဂေါ်မုတ်။
584	ကျောင်း	ကျောင်။
585	မိန်နှိ	စိန်နှိ။
601	And it well known,	And it is well known.

638	"*ai*, followed represents *i* in the strike, Bur. အိုက် by a consonant,"	"*ai* followed by a consonant, represents *i* in the word strike, Bur. အိုက်။"

642-662. These Vocabularies ought to have commenced on a new page, and three pages should have had the same list of English words with the corresponding Karen words in three dialects to each page.

Page	*for*	*read*
664	Myostis,	Myotis.
665	ပျံ	ဖျံ၊
"	Tanis,	canis.
666	kerandrenii,	keraudrenii,
"	မြေပါ	မြေပါ။
"	erase, Hapalomys longicaudatus.	

Page	*for*	*read*
667	လျှယ်	လယ်၊
669	Rabit,	Rabbit.
"	ဖ္ဒဂူ	ဖ္ဒူ။
"	Pachtdermata,	Pachydermata.
672	alaudarius,	alaudarius.
672	kestrill,	kestril.
"	Elamus,	elanus.
673	buboniar,	buboniæ.
"	Bengaldensis,	Bengalensis.
"	asiobrachyotus,	asio brachyotus.
"	celonensis,	ceylonensis.
"	euculoides,	euculoides.
676	orylophus,	oxylophus.
677	ထတ္တရူ	ထုတ္တရူ၊
"	Macropteriginæ,	Macropterygiinæ.
678	preruthius,	pteruthius.
679	serlophus,	serilophus.
"	Eupornis,	Erpornis.
680	nemoricla,	nemoricola.
681	Alcippie,	Alcippe.
684	tchitreadae,	tchitrea.

687 remove "မင်းဒေါင်။ *mendoung*" to below, "Argus giganteus."

Page	*for*	*read*
692	potus,	Plotus.
"	burnicla,	barnicla
693	casarea,	casarca.
694	geores,	gerres.
695	Holynemus,	Polynemus.
697	cirrinus,	cirrhinus.

Page	*for*	*read*
698	sestomus,	systomus.
699	hering,	herring.
701	နသန်း (thrice)	နှသန်း၊
705	Hpdrosaurus,	Hydrosaurus.
707	gram,	gramineus.
709	Engystoma,	Engyostoma.
713	*cerambix*,	cerambyx.
"	gnel,	gmel.
"	carebidæ,	carabidæ.
714	outhophagus,	onthophagus.
"	nacruspis,	Macruspis.
"	sentellum,	scutellum.
715	coch roach,	cockroach
716	coidae,	coccidae.
717	culividae,	culicidae.
722	Poludomus,	Paludomus.
"	pernoblis,	pernobilis.
726	ကြောင့်	ကြောက်။
727	လမ်း၊	ကမ်း၊
"	serptrula,	serpula.
728	ခု	ခူ။
731	ဇဝက်သား	ဇဝက်သား၊
735	Carbornates,	Carbonates.
"	calacreous,	calareous.
"	arugonite,	aragonite.
741	senbra,	scabra.
744	ku-byen,	ka-byen.
748	myouk-kyen,	myouk-kyawie. myouk-gno.

750 erase : "Burmaanni *Vahl*"

Page	*for*	*read*
750	ပန်း	ပန်။
760	ပင်လဖီး	ပင်လယ်ဖီး။
761	ဇင်ရုတ်	ချင်ရုတ်။
"	ထမင်း	ထမှင်းး

769 erase, "myouk-ngo, မျောက်ဝို

774	bouca,	Bouea.
782	sideroxylod,	sideroxylon.
784	lepistemon,	lepisternon,
787	Astor,	Aster.
789	Auclandia,	Aucklandia.
802	Mitteola,	Mitreola.
805	Coempfera,	Cæmpfera.
"	ဝါသိုင်	ဝါးသိုင်။
806	Canua,	Canna.
809	flava,	Eria flava.
807	Buotia,	Bootia.
813	faciculata,	fasciculata.
816	stalicum,	Italicum.
"	volgare,	vulgare.

Page	for	read
818	ဝါ (3 times,	ဝါး။
819	ဝါးကင်း	ဝါးမင်း။
820	ပက်	ဝက်။
"	ချစ်	မျစ်။
821	*Nothochalœna* or *gentea*,	*Nothochlœna argentea.*
822	*quad ianrita*,	*quadriaurita.*
"	Polyponineæ,	Polypodineæ.
"	Ceratoptendineæ,	Cerotopridineæ.
831	Schlothermia,	Schlotheimia.
"	Lejunia,	Lejeunia.
832	Prishiana,	Parishiana.
"	*resnea*,	*usnea.*

FINIS.

00060533

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Government of Maharashtra
on 02 April, 2016